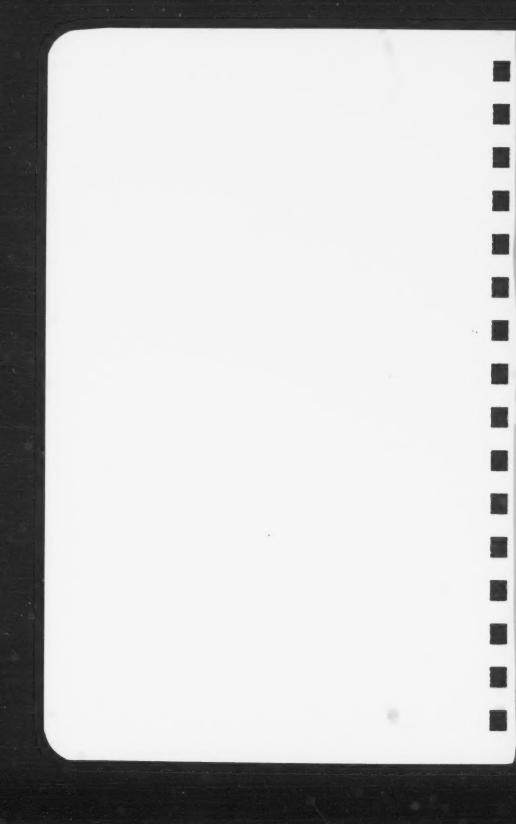


M.S. McLaughlan, R.A. Wright, and R.D. Jiricka



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Front cover photo: Pitcher-plant and small bog cranberry; two species common to Saskatchewan's wetland ecosites.

Back cover photo: Juniper hair-cap moss; a common upland moss found on dry or exposed sites.



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Abstract

The forest ecosystems of Saskatchewan are represented at the site level with 81 ecosites that span Saskatchewan's four ecozones: Taiga Shield, Boreal Shield, Boreal Plain and Prairie. Field sampling provided the raw data upon which the ecosite classification was built. Nearly 1700 semi-permanent relevés were established in 69 of the province's 80 forested ecodistricts. Each relevé provided information about the cover-abundance and growth form of each plant encountered, forest mensuration data, and soil and site characteristics.

The ecosite classification provides summaries of the site attributes for each ecosite within the four ecozones; it also illustrates the relationship among the ecosites, within an ecozone, through a two-way matrix of moisture and species richness values.

This ecosystem classification facilitates better integration of forest management disciplines by providing a common ecosystem language that forms an explicit operational framework for resource managers.

Brief descriptions and ecological interpretations are also provided for each ecosite and usually include significant features and/or a statement about the possible successional trajectory for the ecosite in the absence and presence of disturbance.

Acknowledgements

The building of a forest ecosystem classification system that spans eight ecoregions and is applicable to an area of 41 million hectares requires the talents and valued contributions of a large number of people. The authors would like to thank the following people for the roles they played:

Field Crew – These people traveled across the province and endured sleet, rain, hail, mosquitoes, blackflies, and numerous other discomforts to collect the detailed information upon which this classification was built. The field crew has included:

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This manual is dedicated to the pioneer ecologists who led the way in understanding and classifying the forest ecosystems of Saskatchewan. They are:

> Stan Rowe, Alf Kabzems, Wayne Harris, Adam Kosowan, John Beckingham, Jeff Thorpe, and others.

1. ABOUT THIS GUIDE

"Ecosystem management is place-based and the boundaries of the place of concern must be clearly and formally defined."

- Lackey (1998)

Ecosystem-based management is a holistic approach that requires some detailed knowledge of landscapes and their variations. In forest and range ecology, an important element of that knowledge is the site. A good understanding of a site's ecological conditions, the relationship amongst different sites, and the response of those sites to disturbance and time is an important aspect of resource management. (Slocombe 1993; Haufler *et al.* 1996).

In terms of the sequence of actions and procedures required to implement ecosystem-based management, defining an ecosystem's characteristics is often listed as the initial step (Slocombe 1998). Another requirement of ecosystem-based management includes integration of the various management efforts and disciplines that manage the resource. Forest ecosystem classification is aimed at providing a better understanding of ecosystems for a broad resource management audience (e.g., foresters, technicians, biologists).

Classification of complex ecological systems is not new. As early as 350 B.C., Aristotle documented the process of classification or taxonomy of species on the basis of similarities and differences. Aristotle also realized that species and systems were not only single entities, but also part of something larger: "And of such as these, some are called not parts merely, but limbs or members. Such are those parts that, while entire in themselves, have within themselves other diverse parts" (Aristotle 350 B.C.). This same sentiment is also reflected in the more contemporary works of Aldo Leopold. Leopold (1949) also described individuals as members of a community of interdependent parts and defined a "land ethic" as simply enlarging "the boundaries of the community to include soils, waters, plants, and animals, or collectively: the land". Perspectives such as these are the basis for ecological land and forest ecosystem classification.

Forest ecosystem classification is a process that examines the numerous variables that define a site and distils this information into site-specific ecological descriptions that can be recognized in the field and employed as map entities for the purpose of forest (ecosystem) management. The ecological site or ecosite descriptions can be used as a tool for determining and communicating the most appropriate management actions for the site. Silviculturalists may use the ecosite fact sheets to inform forest renewal planning, while biologists may use the fact sheets to define habitat, and forest fire managers may see the ecosites as potential fuel types.

While different disciplines may focus on specific elements of the ecosite guide, they will also use it in similar ways. The most common and obvious way to use it is as a site assessment tool to identify and classify ecosystems in the field. The guide can also be used to define classification rules that can be used along with spatial data, like forest inventory maps, to predict ecosystem distributions. Alternatively, it also functions as a

comprehensive reference tool, like an ecosystem encyclopaedia which lists the characteristic qualitative and quantitative features of our provincial forest ecosystems.

This guide is therefore a useful tool for planning. And, like other tools, it shares these characteristics that users should be cognizant of:

- It has specifically defined uses, both in terms of area of application and scale of application,
- · The more familiar and skilled the user is with it, the more useful it is,
- · Certain precautions should be noted in order to prevent misuse, and
- · It should be periodically maintained to provide the best results.

1.1 Purpose

The purpose of this guide is two-fold. Its main goal is to explicitly describe Saskatchewan's forest ecosystems so that they can be better understood and consequently more wisely managed. This guide provides site-level summaries of the ecological conditions represented in Saskatchewan's forest lands!. Both biotic features such as vegetation species abundance and abiotic features such as soil and moisture conditions are described. The relationship of one site to another is illustrated on an edatopic grid that features two environmental gradients; moisture and vascular plant species richness. Finally, rudimentary management interpretations and the site's probable response to disturbance are also presented.

A secondary purpose of this guide is to provide documentation of the ambient or baseline natural ecosystem conditions found across the province. In this way, resource managers will have a better idea of the forest vegetation composition and structure that they are to maintain or work to attain after site disturbance.

This guide is intended to facilitate better integration and communication among resource management disciplines. There are often ideological and perceptual differences between professional foresters and biologists, or foresters and geologists because of differences in training and experience. A common site description using well-defined terms and consistent approaches provides the means for each of the disciplines to better understand the attributes of a site and thus work toward a reasonable consensus when addressing management opportunities.

In addition to defining the site-level ecological framework on which to base forest or land management decisions, this guide partially addresses some provincial and national recommendations and objectives. Laird (1955) noted that "A system of site classification (in Saskatchewan) is a recognized need and some work along this line is contemplated in the near future". More recently, Saskatchewan's *Ecosystem Management Plan of Action* identified the need for development of the ecosite classification in addition to describing applications for it (SERM 1999).

¹ Forest land as defined in The Forest Resources Management Act 1996.

Similarly, Canada's national forest strategy, Sustainable Forests: A Canadian Commitment (1998-2003), also identified the completion of forest ecosystem classifications as a target (CCFM 1998). Saskatchewan was signatory to the National Forest Accord, and has been striving to implement the recommendations outlined in the current and the previous National Forest Strategies.

Finally, this guide completes the ecological classification of forested ecozones in the province. In 1996, Beckingham et al. published the Field Guide to Ecosites of the Midboreal Ecoregions of Saskatchewan. In addition to revising and augmenting that work, the current guide provides an ecosite classification for the Shield ecozones as well as for some forest conditions in the Prairie ecozone. It also complements the Saskatchewan Rangeland Ecosystems-Ecosites and Communities of Forested Rangelands (Thorpe and Godwin 2008).

1.2 Project Objectives & Scope

Ecosystem classifications can be nearly as variable as the ecosystems that they are attempting to describe. Some describe geographically distinct ecosystems based on geologic and soil attributes at a very large scale, while others describe repetitive patterns of vegetation at site-level scales.

Each classification is designed with a specific purpose and a specific set of design criteria. Some criteria established for this project were that it:

- Includes both terrestrial and wetland ecosystems,
- Is applicable to both forest and non-forest ecosystems within the provincial forest zone,
- May be applied at a scale that is readily recognized for both planning and mapping,
- · Ut:lizes readily recognized site features to distinguish between ecosystems,
- Addresses gaps in previous classifications,
- Is comparable or compatible with similar classifications within and outside the province, and
- Captures the regional variation of ecosystems across the forested portion of the province.

The scope of the classification project can be defined in terms of deliverables and geographical location. The primary deliverables associated with this project are the field guide (available in both hard copy and electronic copy versions) and a database of georeferenced ecosystem information (e.g., species and abundance of vegetation, soil textures and horizon depths). The field guide provides a handy summary reference which describes the characteristic features and descriptions of our provincial forest ecosystems. The database includes the complete and detailed inventory of plant and lichen species encountered, forest mensuration data, and site and soil information for the

² Each plot measured 10 m x 10m.

network of nearly 1700 plots2 established across the province.

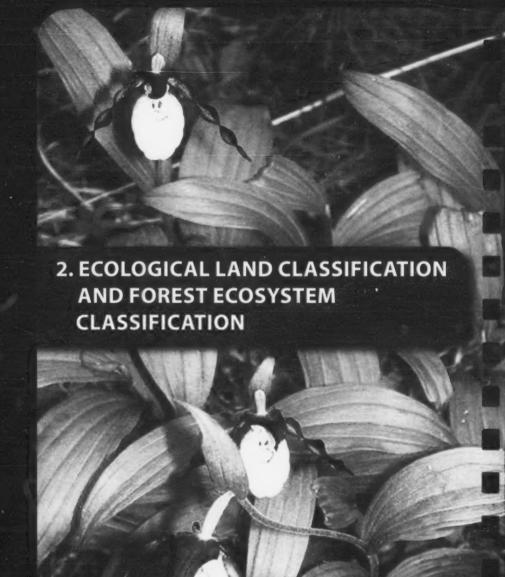
The area covered by this classification includes the provincial forest contained within the Taiga Shield, Boreal Shield, Boreal Plain, and Prairie ecozones.

1.3 Primary Users

This classification was designed to meet the needs of resource professionals: foresters, forest technologists, biologists, and others who are responsible for managing Saskatchewan's forest landscapes. Their input was gathered part way through the guide's development process and it shaped the type and detail of information that is presented in the fact sheets. As such, the guide may be used both for field identification and as a reference manual. The combination of diagrams, tabular data, descriptive narratives, and schematics should help different readers build a consistent qualitative and quantitative mental picture of the ecosystems encountered across the forested landscapes of Saskatchewan.

While aimed at a technical audience, the information contained in this guide may also be of value to policy-makers, teachers, students, academics, and any other individual with an interest in, or connection to, the province's forest ecosystems.





"Ecosystems are not only more complex than we think; they are more complex than we can think."

- Egler, 1977

Ecological land classification is the process of defining, describing, and delineating large scale ecosystems for the purpose of land management. It integrates biotic (e.g., vegetation) and abiotic (e.g., climate, hydrology) features into single or simpler entities. It often provides a hierarchical organized framework in which the context and scale of ecosystems can be related, interpreted, and better understood (Sims et al. 1996). In short, ecological land classification takes complex natural landscapes and creates order by separating them according to differences.

The two primary approaches to ecological land classification are regionalization and classification. Regionalization is the process of decomposing or dividing larger units into smaller ones on the basis of differences (Rowe 1992). For example, a satellite image of Saskatchewan would reveal forests in the north and prairies in the south. Regionalization would separate the Prairie and Boreal Plain ecozones on the basis of such major trends in vegetation cover.

Classification in contrast merges sites into discrete units on the basis of similarities (Rowe 1992). With forest ecosystem classification, vegetation is often used as the primary attribute to define ecosystems or communities in a science that is referred to as phytosociology. Thus forest ecosystem classification can be defined as the process of collecting and analytically sorting site level ecosystem information into recognizable forest units.

In addition to the mechanism of how units are created and for the purpose of this guide, we make the following distinctions between ecological land classification and forest ecosystem classification:

- Typically, ecological land classification is conducted at scales of 1:100,000 or greater, while forest ecosystem classification is conducted at finer scales,
- Ecological land classifications are readily used for landscape planning or reporting purposes while forest ecosystem classification is more readily applied at the operational, tactical, or site levels,
- The degree of variability and detail of presented ecosystem attributes is generally greater for forest ecosystem classifications than with ecological land classifications, and
- Ecological land classification units (e.g., ecozones, ecoregions) are usually
 contiguous units on the landscape while forest ecosystem classification units
 (e.g., ecosites) are discontinuously distributed.

2.1 Hierarchy

The Canadian system of ecological land classification has seven primary levels: 1) ecozone, 2) ecoprovince, 3) ecoregion, 4) ecodistrict, 5) ecosection, 6) ecosite, and 7) ecoelement (Uhlig and Jordan 1996). Each division is nested within its predecessor and is associated with an approximate range of map scales. Table 1 provides an overview of the Canadian classification.

The first four ecological levels in Table 1 represent relatively unique, discrete, and geographically contiguous ecosystems. However, there are exceptions. While most ecoregions are discrete entities, the Mid-Boreal Uplands ecoregion is made up of 10 separate polygons that are distributed across Alberta, Saskatchewan, and Manitoba. Similarly the Aspen Parkland ecoregion is made up of two separate polygons.

Ecosections, ecosites, and ecoelements are typically represented as recurring combinations of vegetation, soils, and landform. Ecoelements often take the form of vegetation or soil types (e.g., V & S-types in Manitoba and Ontario) or they may be referred to as plant community types (e.g., as in Alberta). Ecosections for the most part have not been defined and are considered by many to be equivalent, along with ecodistricts, to soil landscape units presented in the national classification system.



Table 1. Units of the Canadian Ecological Land Classification System (adapted from Uhlig and Jordan, 1996)

Ecological Level	Often Defined by	Typical Map Scale	# of Units in SK	# of Units in Canada
Ecozone	climatelandformsregional vegetation patterns	1:1,000,000	4	15 Terrestrial 5 Marine
Ecoprovince	surficial formshydrologyclimatelandforms	1:500,000 to 1:1,000,000	6	53
Ecoregion	climatevegetationsoilshydrologylandforms	1:250,000 to 1:500,000	11	194
Ecodistrict (Landscape Area) ¹	- relief - geology - vegetation - soils - hydrology	1:100,000 to 1:500,000	159	1021
Ecosection	- soils - hydrology - climate - landforms - relief	1:50,000 to 1:250,000		4
Ecosite	vegetationsoilssite features	1:20,000 to 1:50,000	81	> 4000
Ecoelement	vegetationsoilstopography	1:10,000		~

³ In Saskatchewan, ecodistricts are also known as landscape areas (Acton, Padbury and Stushnoff 1998).

"A system of site classification is a recognized need and some work along this line is contemplated in the near future."

- Laird, 1955

2.2 Saskatchewan Context

Formal and informal ecological land classification has occurred in Saskatchewan since at least 1857. It was at this time that the Palliser expedition began cataloguing the flora, fauna, and geology of the province (Heinrichs 2007). In 1921, the Saskatchewan Soil Survey began the long process of describing, classifying, and mapping the province's soil conditions. In addition to collecting and mapping soils, surveyors also collected biological and botanical information (Moss 1983).

In 1950, the Canadian Institute of Forestry established a national committee on forest soils and site. Saskatchewan was represented on the committee by Alf Kabzems from the Department of Natural Resources and Industrial Development (Hills 1952). And in 1955, Laird reported that, "A system of site classification is a recognized need and some work along this line is contemplated in the near future."

A considerable amount of work has occurred since that time including the Canada Land Inventory. In 1983, the Ecological Regions of Saskatchewan was published and again revised in 1989 (Harris *et al.* 1989). In 1986, Kabzems *et al.* described 23 ecosystems in the publication: *Mixedwood Section in an Ecological Perspective* which included management interpretations associated with these sites. In 1994, the Ecoregions of Saskatchewan poster map was produced which was followed in 1998 by the background technical document (Acton *et al.* 1998). **Figure 1** illustrates the 4 ecozones represented in Saskatchewan.

It was also about this time when Beckingham *et al.* (1996) published the *Field Guide to Ecosites of the Mid-Boreal Ecoregions of Saskatchewan*. That guide classified 13 ecosites (*i.e.*, eight terrestrial and five wetland sites), 23 ecosite phases, and 78 plant community types.

More recently two more focussed guides have been published; one specifically about wetlands and the other encompassing rangelands.

The wetland guide was produced by Ducks Unlimited Canada and is applicable to the Boreal Plain ecozone (Smith *et al.* 2007). It identifies 19 wetland types, is consistent with the Canadian wetland classification, and is designed to classify sites on the basis of remotely sensed information.

The rangeland guide (Saskatchewan Rangeland Ecosystems - Ecosites and Communities of Forested Rangelands) developed by Thorpe and Godwin (2008) describes and classifies the forested rangelands in the Aspen Parkland and Boreal Transition ecoregions. It also provides information to help in the assessment of rangeland sites from the Mid-Boreal Upland and Lowland ecoregions and the Moist Mixed Grassland ecoregion.

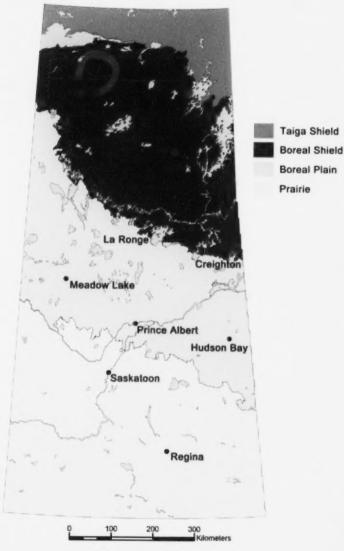


Figure 1. Saskatchewan's four ecozones



Ecological land classification and forest ecosystem classification are place-based processes. They are designed with data from and about specific areas. They present information in a format and structure that people can relate to.

A well designed classification will allow the reader to create a mental image of a site. It will also provide the reader with the ability to begin understanding the relationship between different types of sites in terms of physical (*i.e.*, abiotic) features and in terms of its living components.

3.1 Geographical Location and Area of Use

While the general area of application for this guide is the province of Saskatchewan, it is specifically intended to be applied within the provincial forests (Figure 2). The provincial forests are designated under Chapter F-19.1 of *The Forest Resources Management Act* and defined under Appendix III of *The Forest Resources Management Regulations* (Anonymous 1996).

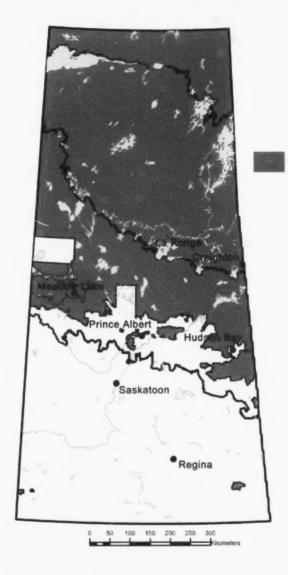
The contiguous provincial forest encompasses the Taiga Shield, Boreal Shield, and much of the Boreal Plain ecozone. Only a limited area of the Prairie ecozone is covered by this guide; specifically Cypress Hills Provincial Park and Moose Mountain Provincial Park.

It is worth noting that although the field sampling for this guide occurred completely within the province, the ecozones extend into adjacent jurisdictions and the guide may have applicability in those bordering areas.

3.2 Geology and Surface Deposits

Both surficial and bedrock geology shape the landscapes of Saskatchewan. Ecozonal and ecoregional boundaries are in large part determined by these features. Some ecoregional boundaries can be difficult if not impossible to recognize from the ground, but most people can identify the differences in soil depth expressed by exposed bedrock at the border of the Boreal Shield and Boreal Plain ecozones.

The Precambrian Shield is conspicuously exposed across much of northern Saskatchewan (Figure 3). Glacial processes have deposited, moved, and reworked materials across the north and throughout the south of Saskatchewan. In the last two million years, at least five glacial periods have occurred in the province (Acton *et al.* 1998) although some areas such as parts of the Cypress Hills have escaped the most recent glaciation. Eskers, drumlins, and other ice contact features each contribute a physical backdrop supporting ecological diversity and are evidence of Saskatchewan's glacial history.



Provincial forests

Figure 2. Saskatchewan's provincial forests and area of application for this field guide.

"We know more about the movement of celestial bodies than about the soils underfoot."

- Leonardo Da Vinci, 1510

3.3 Topography and Soils

The topography of Saskatchewan is surprisingly diverse. The Cypress Hills of the south reach an elevation of 1392 m (600 m above the surrounding plain) while Lake Athabasca in the north is only 213m above sea level (Sauchyn 2009; Lewry 2009). In between these locations are examples of expansive plains, rolling hills, and even talus slopes. Physical soil attributes are initially established by their mode of deposition (e.g., eskers) and subsequently reworked by processes such as wind, erosion, and sedimentation.

The soils associated with the various landforms are in turn modified by climatic factors as well as vegetation and associated site disturbances such as fire or biochemical processes associated with plant growth or decay.

Soil orders commonly associated with our provincial forests are Brunisols, Organics, Luvisols, Gleysols, and Regosols which account for approximately 93 percent of the soils surveyed for this guide. The balance of the remaining 'soils' include Cryosols, Chernozems, and Podzols (Figure 4) and some nonsoil conditions such as exposed bedrock.

3.4 Climate

Saskatchewan's climate is as variable as its topography. Two key climatic factors that influence the occurrence and abundance of vegetation are moisture availability and temperature. Table 2 provides an overview of the average annual precipitation and temperature associated with various locations in some of Saskatchewan's ecozones. As latitude



Figure 3. Black spruce covered granitic bedrock Figure 4. Soil pit established at Snare Lake (a BS7 ecosite) along the shores of Lower Foster Lake.



showing an Eluviated Dystric Brunisol with a prominent (25 cm thick) ash-coloured Ae layer at the surface and a reddish-brown Bm layer underneath.

increases (i.e., as you move north) the average annual temperature decreases from $3.6\,^{\circ}\text{C}$ to $-0.7\,^{\circ}\text{C}$.

Table 2. Average annual temperatures and precipitation associated with various ecozone locations (Environment (anada 2009).

Ecozone	Site	Location	Elevation (m)	Average Annual Temperature (°C)	Annual Precipitation (mm)
Prairie	Swift Current	50° 18' N 107° 41' W	818	3.6	377
Prairie	Cypress Hills	49° 40' N 109° 28' W	1196	3.1	607
Boreal Plain	Prince Albert	53° 13' N 105° 40' W	428	0.9	424
Boreal Plain	La Ronge	55° 09' N 105° 16' W	379	-0.1	483
Boreal Shield	Cluff Lake	58° 22' N 109° 22' W	330	-0.7	452

A lesser but evident decrease in temperature is also associated with an increase in elevation (*i.e.*, Cypress Hills are cooler than the adjacent plain). While temperature is an important factor in determining the distribution of vegetation types, Looman (1983) also attributes their distribution to the ratio of summer and spring precipitation as well as soils conditions.

3.5 Vegetation

Each of Saskatchewan's four ecozones has a distinctive vegetation assemblage. The Prairie ecozone is dominated by grasslands, but embedded in the Prairie are the Cypress Hills, known for their lodgepole pine. The Boreal Plain ecozone conjures up images of aspen parklands in the south and mixedwoods of trembling aspen and white spruce. The Boreal Shield ecozone often evokes images of bedrock-controlled terrain with continuous stands of black spruce and jack pine. The northern Taiga Shield is also associated with coniferous types, but the trees are shorter and grow in more widely spaced stands compared to southern forests. Wetlands or peatlands bring to mind open spruce bogs and tamarack fens scattered across the landscapes of the north.

While each of the described ecozones do in fact possess these forest vegetation conditions, they also support a wider diversity of other vegetation and soil conditions (e.g., ecosites). Some of the ecosites are unique to particular ecozones (e.g., BP17: Manitoba maple - balsam poplar/ostrich fern in the Boreal Plain) while other ecosites (e.g., TS9 = BS17 = BP19 black spruce treed bogs) are found throughout much of the forested province.

4. DEVELOPMENT PROCESS

Data collection for this guide began in 1999 and continued until 2003. This part of the process involved hundreds of staff and took thousands of hours to complete. In addition to this effort, considerable effort was also expended in the planning phases leading up to that period and even more effort occurred in the analysis, compilation, and documentation phases that completed the development process.

4.1 Project Planning

A project can be defined as "any temporary organized effort that creates a unique product..." A project also brings "together people from a range of jobs and provide(s) them with the opportunity to collaborate in a unique way" (Martin and Tate 1997).

Due to the complex and longer-term nature of this project, a formal project management approach was utilized. The specific methodology used was the MartinTate project management approach (Martin Training 2002). The key steps in the project were:

- · Creating the project charter,
- · Developing the project plan, and
- · Executing the project.

Of these steps, the development of the project charter was crucial because it provided the foundation for the project and provided the focus for its execution.

4.2 Experimental Design

The Saskatchewan forest ecosystem classification program included five major planning items within the domain of experimental design. They were:

- · Selection of statistical/data analysis methods,
- · Sampling design (including randomization and replication),
- · Database design and maintenance,
- · Data collection and entry, and
- · Data analysis.

The major components of the experimental design process are outlined in Figure 5.

Forest classification in Canada was founded on the recognition that ecosystem productivity and biotic composition are closely tied to both physical site factors and the nature of the plant community. The long evolution of forest classification in Canada has embraced both sets of factors as essential to a logically-sufficient and operationally-useful description of forest ecosystems. Angus Hills' pioneering work on forest site types in Ontario was an early, sophisticated example of a holistic classification system incorporating both types of factors (Hills and Pierpoint 1960; Hills 1961). Recent forest ecosystem classifications in Ontario and Western Canada have continued the tradition of combining both physical and biotic site factors to characterize ecosystems.

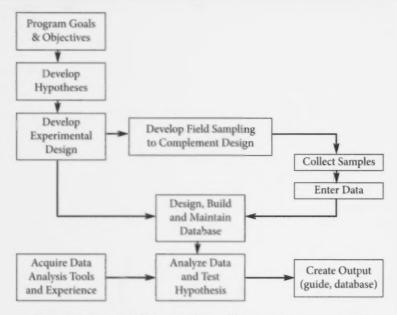


Figure 5. Experimental design, sampling and data analysis process associated with the creation of Saskatchewan's forest ecosystem classification.

4.3 Stratification and Sampling

Gauch (1982) gives an overview of the relative merits of random, stratified random, regular, and preferential placement of sampling points in the landscape. The Saskatchewan FEC program utilized a stratified random approach to sample with sampling intensity proportional to area of the recognized strata (e.g., ecodistricts, soil landscape units, and surficial geology units). To capture the ecological variability of the province in one guide, sampling was stratified according to four primary criteria:

- · Ecodistrict (i.e., landscape area),
- · Soil landscape unit,
- · Surficial geology, and
- · Dominant forest cover type.

Ecodistricts were selected as the primary level of stratification because of their inherent incorporation of biotic and abiotic characteristics, the scale at which they are mapped, and their place in the ecological land classification hierarchy (Table 1). Sampling occurred in over 85% (i.e., 69) of the identified ecodistricts and the remainder (i.e., 11) were not sampled because they were not readily accessible. The location and distribution of the sample plots can be seen in Figure 6.

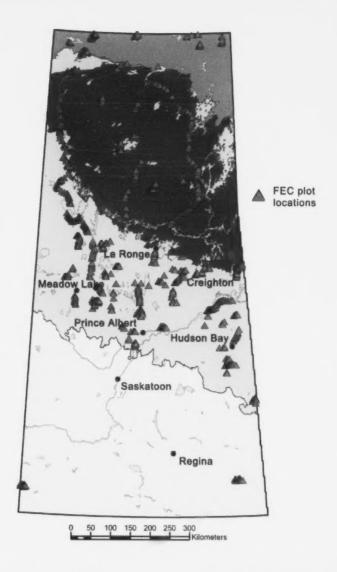


Figure 6. Location of the sample plots that were collected for the development of Saskatchewan's forest ecosystem classifications.

The second level of stratification was based on soil landscape units which provided information about the predominant soil orders and great groups. In addition, the parent material mode of deposition (e.g., morainal, lacustrine), surface form (e.g., level, hummocky) and percent slope were also evaluated at this level of stratification. This information was obtained from the 1:1,000,000 Soil Landscape Map of Canada (Saskatchewan).

The third level of sampling stratification was surficial geology. Saskatchewan Geological Survey maps of quaternary geology (at 1:250,000 scale) were used to identify the dominant environment categories (e.g., morainal, glaciolacustrine, organic) and geomorphic modifiers (e.g., veneer, plain, hummocky). This part of the process occurred concurrently with the secondary stratification and provided more detail than was provided on the soil landscape maps.

The final level of stratification considered was forest cover types. The dominant and secondary tree species were used to identify this stratum.

While not every variation of these criteria could be surveyed, a focus was put on trying to capture the dominantly expressed combinations. Field sampling methodology also allowed for the establishment of relevés in unmapped 'rare' ecosystems as identified by crews in the field.

Based on the desired stratification, sample site locations were plotted along access points (e.g., lakes) and corridors (e.g., roads). Occasionally disturbances such as recent fires required that the relevés be moved since one of the sampling criteria was that sites which were sampled had to be at least 40 years post-disturbance. Generally this was determined by aging trees around the plot. Other restrictions on the sampling included the season or timing in which the relevés could be established. Due to the emergence and senescence dates of the different vegetation encountered across the province, sampling was only conducted between June 20 and August 31.

4.4 Data Management

The primary data capture occurred on paper forms, one each for plot, vegetation, tree mensuration, and site/soil information. These field data sheets were scanned and the handwriting translated into a database output. Microsoft Access® was used to house, manipulate, and manage these data. The primary database was structured according to the physical arrangement on the datasheets. These primary databases were then scanned for errors. This secondary database was then used as the source of data for the application of Visual Basic programming to re-structure the databases into a form suitable for data analysis. The VB programming not only re-structured the databases but also provided automated error checking (e.g., when data entries lay outside valid ranges). These tertiary databases were then utilized to create the spreadsheet output needed for most multivariate vegetation analysis programs.

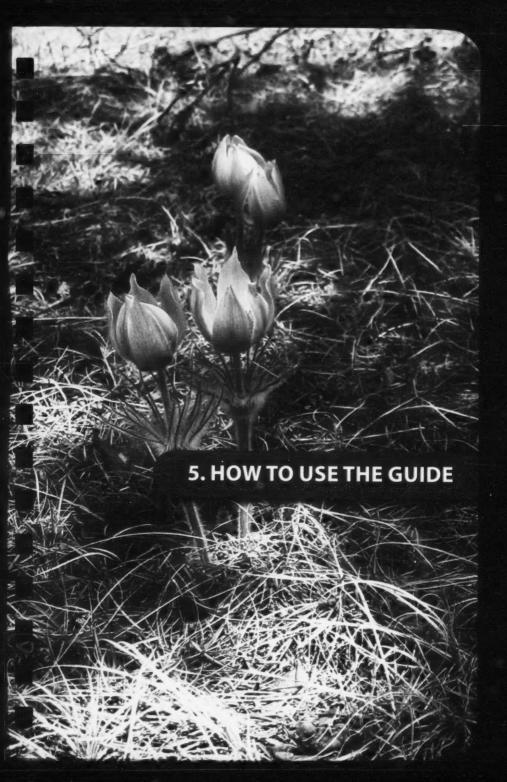
The database is currently maintained by the Saskatchewan Ministry of Environment - Forest Service Branch.

4.5 Data Analysis

Classification by clustering and ordination (Legendre and Legendre 1998) were the primary analytical approaches used to investigate the range of terrestrial ecosystem variation in Saskatchewan's forests. Results from these multivariate data exploration techniques were the basis for resolving the initial set of ecosites from the data. The relationships between ecosites and underlying environmental gradients were investigated using indirect gradient analysis (Gauch 1982). Expert opinion was used to fine-tune the ecosite plot compositions to derive the final set of plots used to describe each ecosite.

The data were analysed with clustering and ordination techniques using the algorithms found in the PC-ORD community analysis program (McCune and Mefford 1999). A structured program of combining clustering algorithms with various indices of similarity resulted in the decision to use Ward's method (hierarchical grouping) as the clustering algorithm and relative Sorensen distance as the measure of relevé (i.e., plot) floristic similarity. The dendrograms produced by the clustering technique were the basic information on which the initial identification of ecosites was based. Several ordination techniques (i.e., PCA, DCA, RA, CCA, and NMS) were run to provide ordination diagrams to augment and interpret the dendrogram clusters. In general, DCA (detrended correspondence analysis), RA (reciprocal averaging), and CCA (canonical correspondence analysis) ordinations provided the most useful groupings for interpreting the dendrograms relative to site variables (e.g., soil moisture regime, soil texture, slope, aspect, etc.) and synthetic community variables (e.g., herbaceous species richness, total shrub cover, etc.).

A process of expert analysis by the program team was utilized to modify the original clusters to produce the second approximation ecosites. In this process, any relevés which appeared to be poor fits to their home cluster were examined more closely and compared to the membership of other, similar clusters. The relevé was then assigned to the cluster which best reflected its floristic and environmental characteristics. This process, when completed, resulted in the second version of the ecosites. A final process of examining the second order clusters produced the third and final arrangement. At that point, the relevés in each ecosite cluster were used to produce the summary description of species composition, forest structure, soil characteristics, and environmental conditions used in this manual.



How to use the Guide

The ecosites identified in this guide are largely based on floristic similarities (and differences); however, one need not be a botanist in order to accurately identify Saskatchewan's forest ecosites. The following are a few tips to help the user select how, where, and when to assess site conditions for this purpose.

Site or stand variability may make it confusing or difficult to properly assign an ecosite. Where stand conditions are not naturally homogeneous, it is a good idea for the assessor to walk through a portion of the stand to obtain a better estimate of the forest, vegetation, and site conditions. Take care to note the overstorey species composition and canopy cover as well as species ground cover. Specifically, train your eye to look for some of the diagnostic species and quantities which are cited in the keys. Similarly, ecosites are characterized as much by what they don't have as by what they do, so also make note of which indicator species are absent.

When conducting your site reconnaissance be wary of straying into ecotones, or the boundaries between different ecosystem types. These often narrow areas typically contain a wider range of species that are associated with each condition. Boundaries are usually associated with changes in topography or moisture regime. Areas being assessed should be representative of the stand.

While assessments based on the guide can be obtained virtually any time of year, accuracy increases when more of the site conditions (e.g., vegetation) are visible. Most plant species are at their peak occurrence and cover between July and September. However, other site features such as soils and topography provide other cues which assist in determining the ecosite.

Once you become familiar with the nuances of the ecosites from their descriptions, you will readily be able to classify a site without using the keys.

5.1 Keys

To help users classify their sites and landscapes into ecosystems (*i.e.*, ecosites), a series of diagnostic dichotomous keys have been developed to assist navigation through the numerous characteristics that distinguish one ecosite from another. It is important to note that the keys are not the classification; rather they are simply tools to help guide the user to the most likely ecosite. The fact sheets and their component descriptions and summaries represent the classification.

Keys have been developed and are presented for each of the four ecozones. While the ecozones are different, the keys are similar and have parallel structure to assist users in relating their knowledge across areas. Each ecozone⁴ begins with an overview key that separates major classes of systems such as wetlands from terrestrial sites. The terrestrial sites are then further divided into forest types, largely by the dominant tree lifeforms (e.g., coniferous, deciduous).

⁴ With the exception of the Prairie ecozone.

How to use the Guide

Since some terrestrial forest ecosystems are represented by a range of intergrading conditions, it is possible to classify some ecosites from more than one key. For example, the BP4 ecosite (Jack pine - trembling aspen / feathermoss: Moderately fresh sand) can be arrived at by following either the coniferous or the mixedwood ecosites key, while the BP5 ecosite (Trembling aspen / prickly rose / grass: Fresh sand) can be arrived at by following the deciduous or mixedwood ecosites key.

Each of the forest type and wetland keys associated with the ecozones uses three primary features to distinguish the most likely ecosite: 1) abiotic condition (e.g., moisture regime), 2) plant species present on the site, and 3) cover values associated with the plant species.

The abiotic condition assessment identified in the keys is primarily used to distinguish between wetland and terrestrial conditions. It relies on the identification of:

- · Depth of organic material,
- · Depth to water table,
- · Permanently frozen condition, and
- · Moisture regime.

Similarly, the wetland keys also use "open water" as an indicator of the fen condition, and the Boreal Shield ecozone also contains a key which requires readers to identify the surface material (*i.e.*, predominantly rock or not).

The plant species that need to be identified to classify terrestrial sites are predominantly trees, although some identification of lesser vegetation is required to tease apart a couple of similar, but distinct ecosites. **Table 3** summarizes the diagnostic species referenced in the terrestrial keys for each of the individual ecozones. Users who are unfamiliar with the species identified in this guide are encouraged to obtain a copy of: "Plants of the Western Boreal Forest & Aspen Parkland" (Johnson et al. 1995). This plant guide covers all of the species referred to in this ecosite guide, is easy to use, and provides clear descriptions, illustrations, and photographs. Section 7 of this guide provides a complete listing of the common and scientific species names referenced in this guide. The species naming convention for vascular plants follows the taxonomy of Harms (2006).

Unlike the terrestrial sites, wetland sites are keyed first by the predominant physiognomy class (e.g., growth form of the plants such as trees, shrubs, herbs, etc.). Next they are keyed with a calculation using specific diagnostic species associated with bog and fen conditions.

How to use the Guide

Table 3. Diagnostic species identified in the terrestrial keys to the ecosites by ecozone.

Ecozone	Trees	Shrubs & Herbs	Mosses & Lichens
Taiga Shield	balsam poplar trembling aspen white birch black spruce jack pine white spruce	3-toothed saxifrage pink corydalis twinflower	
Boreal Shield	balsam poplar trembling aspen white birch balsam fir black spruce jack pine white spruce		feathermosses lichens
Boreal Plain	balsam poplar Manitoba maple trembling aspen white birch balsam fir black spruce jack pine white spruce	mountain maple beaked hazel bearberry bluebell blueberry green alder Labrador tea lingonberry golden-bean goldenrod common yarrow	feathermosses reindeer lichens
Prairie	balsam poplar trembling aspen green ash lodgepole pine white spruce	-	-

While the calculation may seem complex or cumbersome at first, repeated use and understanding of the site features will allow rapid and accurate assessment of wetlands. Until one becomes familiar with the nuances of wetlands, it is important to consider all of the vegetation in the key as well as the other site features. Many people make the mistake of using a single species as an indicator (such as tamarack) and will sometimes misclassify a site as a fen, when it is actually a bog.

The terrestrial ecosite keys differ considerably by ecozone; the wetland ecosite keys are much more similar in nature. Each wetland key shares similar diagnostic species with a couple of exceptions that recognize the slightly greater diversity of wetland types in the Boreal Plain ecozone. Table 4 summarizes the wetland diagnostic species.

Table 4. Diagnostic species identified in the wetland ecosite keys.

Trees	Shrubs	Herbs	Mosses & Lichens
amarack	alder-leaved buckthorn bog bilberry bog birch common blueberry creeping snowberry dwarf bog rosemary Labrador tea leatherleaf lingonberry northern bog laurel river alder shrubby cinquefoil small bog cranberry sweet gale willow	bladderworts buck-bean cattail dwarf raspberry hooded ladies'-tresses Kalm's lobelia marsh cinquefoil marsh marigold marsh reed grass marsh skullcap marsh violet marsh willowherb northern grass-of- Parnassus rough cinquefoil seaside ari w-grass slender arrow-grass sticky false asphodel swamp horsetail 3-leaved false Solomon's seal tufted loosetrife water hemlock water parsnip western dock	dicranum moss golden fuzzy fen moss Schreber's moss tufted moss club, cup, & spike lichens reindeer lichen

Cover or abundance of plants on a site not only define the site, but are indicative of other ecological features such as moisture regime, calcareousness, pH, productivity, or salinity. The keys in this guide use both relative and absolute cover values to distinguish between sites. The values presented in the keys are based on actual field data and represent the thresholds that distinguish between similar ecosites. It is important to remember that natural populations vary considerably, so when vegetation cover estimates in the field are uncertain or borderline conditions occur, consider following both

wild mint

possible decision paths and compare the different resulting factsheet descriptions to one another and to the site in question to determine the best fit.

When working through the keys, it is important to note that '% canopy cover' or '% cover' are different from '% of the canopy'. Canopy cover or percent cover are measures of the ground area covered by the species being assessed (e.g., Taiga Shield Wetlands Ecosites Key: "Canopy cover of tree species (>2m) is ≥ 10 %"). They are absolute measures that are illustrated in **Figure 7**. Decision points in the keys that refer to a specific percent of the canopy (e.g., 'jack pine is ≥ 20 % of the canopy') are relative measures of one tree species' abundance in comparison to other tree species on the site. That is, a stand/or site which is entirely composed of jack pine would be described as having jack pine at 100% of the canopy, even though the canopy cover may only be at 65%.

Relative percent canopy measures can be roughly estimated by visually counting the number of stems of each species and considering the ratio. For example, if from your observation point you count 15 stems of jack pine and 35 stems of aspen, then jack pine occupies approximately 30% of the canopy while the aspen occupies 70% of the canopy. Of course this assumes that the tree species being compared have equivalent canopy sizes. Accuracy of the canopy ratio (percent) can be improved by taking into account the canopy size differences.

Cover value can be difficult to estimate and many people have limited experience estimating cover values, so three approaches are recommended to improve your cover estimates.

- 1) Compare the plant cover being estimated to the standardized cover values illustrated in **Figure 7**.
- 2) If percentages are difficult to visualize, then consider the values as simple fractions (e.g., $50\% = \frac{1}{2}$, $65\% \approx \frac{2}{3}$, $30\% \approx \frac{1}{3}$).
- 3) Visualize all of the cover associated with the plant being assessed into one continuous portion of the total area. Then ask yourself these questions:

Does the cover constitute more than half of the area?

If Yes - Does it cover > 75% of the area?

If Yes - cover class choices are 75, 80, or 90%

If No - cover class choices are 50 or 65%

If No - Does it cover > 25% of the area?

If Yes - cover class choices are 25, or 30%

If No - cover class choices are 5, 10, or 20%

For the most part, the terrestrial ecosite keys refer to relative measures (i.e., '% of the canopy') while the wetland ecosite keys refer to absolute canopy cover values although there are exceptions.

Of all the decision points in the dichotomous keys, approximately 70 percent rely upon identification of the site's tree species and associated cover. Sometimes the term

'leading species' or 'leading conifer' is used in the keys. A 'leading' species is the species with the greatest canopy cover from (usually) the tallest stratum of trees. Using these features was a conscious decision made to assist with the identification of sites on the basis of remotely-sensed (i.e., forest inventory) data.

Finally, the absence of an ecosite on a key (*e.g.*, no marsh ecosite on the Boreal Shield) may not necessarily mean that it does not exist on the landscape, but rather that its presence is uncommon enough to have escaped observation and sampling. In these cases, it is usually worthwhile to note the aberrant ecosite rather than force-fit a clearly unmatched field condition into the defined ecosite classes.

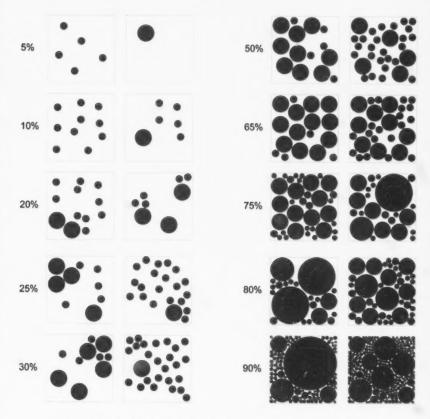


Figure 7. Standardized cover value illustrations for cover values of 5 - 90%.

5.2 Wetland Key Calculations

Each of the forested ecozone keys is composed of two primary divisions: terrestrial and wetland. While the terrestrial keys differ considerably between ecozones, the wetland keys share common decision points. In addition, each wetland key refers to a fen indicator calculation (Table 5). The calculation consists of three steps to help readers arrive at the most appropriate ecosite:

- 1) Counting the number of fen indicators that are readily found on the site (e.g., within a 100 m² area).
- 2) Subtracting the number of bog indicators that are readily found on the site.
- If the resulting number is ≥ 3 then the site is likely a fen, otherwise it is likely a bog.

If borderline conditions are encountered (e.g., calculation result = 3), then consider the abundance or quantities of the indicators that are found on the site, the size and representativeness of the surveyed area (of the site), and the amount of sampling effort expended (e.g., too little or too much effort may skew the results). If unsure, compare and contrast the possible ecosite fact sheets to determine the ecosite. It is also important to note that bogs and fens are also distinguished by their hydrology. Fens are mineral-rich wetlands influenced by ground water, whereas bogs are nutrient-poor wetlands dependant on rain and snowfall for their water supply.

Table 5. Fen Indicator Calculation

		Fen Indicators	
	open water	tufted loosestrife	hooded ladies'-tresses
	tamarack	rough cinquefoil	marsh willowherb
	river alder	buck-bean	marsh violet
. Count the # of	bog/dwarf birch	marsh cinquefoil	Kalm's lobelia
fen indicators	willow species	marsh reed grass	N. grass-of-Parnassus
encountered	alder-leaved buckthorn	dwarf raspberry	sticky false asphodel
	shrubby cinquefoil	marsh marigold	golden fuzzy fen moss
	sweet gale	bladderwort species	tufted moss
	swamp horsetail	slender arrow-grass	
		Bog Indicators	
2. Subtract the # of	lingonberry	Schreber's moss	reindeer lichens
bog indicators encountered	3-leaved false Solomon's seal	dicranum moss	club, cup, & spike lichens

Some of the wetland keys reference ericaceous shrubs. A listing of important ericaceous shrubs is found in **Table 6**.

Table 6. Important ericaceous shrubs.

Ericaceous Shrubs

bog bilberry common blueberry creeping snowberry dwarf bog rosemary lingonberry Labrador tea leatherleaf northern bog laurel small bog cranberry

In using the wetlands keys, note that although black spruce and tamarack may be listed on the ecosite fact sheets in both the tree and shrub categories (*i.e.*, because of height), do not include tree species that are > 2 m tall in the cumulative cover of shrubs in the wetland keys.



5.3 Nested Format Keys 5.3.1 Taiga Shield

5.3.1.1 Taiga Shield Overview Key

- Non-soil adjacent to water body
 Site has < 2 of the above characteristics: follow Terrestrial Ecosites Key

5.3.1.2 Taiga Shield Terrestrial Ecosites Key

1. Jack pine and/or black spruce are ≥ 80% of the canopy	2
1. Jack pine and/or black spruce are < 80% of the canopy	
2. Jack pine is ≥ 50% of the canopy	
2. Jack pine is < 50% of the canopy	TS4
3. ≥ 2 of the following are true	TS1
3-toothed saxifrage present	
pink corydalis present	
no twinflower	
3. < 2 of the above are true	TS2
4. White spruce, trembling aspen, or balsam poplar obvious in the canopy	5
4. White spruce, trembling aspen, and balsam poplar usually absent from	
the canopy	
5. Trembling aspen is ≥ 50% of the canopy	TS5
5. Trembling aspen is < 50% of the canopy	
6. White birch is ≥ 80% of the canopy	TS3
6. White birch is < 80% of the canopy	TS7

5.3.1.3 Taiga Shield Wetland Ecosites Key

. Vascular and/or bryophyte species cover is ≥ 10%	2
. Vascular and/or bryophyte species cover is < 10%	
2. Canopy cover of tree species (>2m) is ≥ 10%	
2. Canopy cover of tree species (>2m) is < 10%	5
3. Canopy cover of tree species (>10m) is ≥ 25%	TS8
3. Canopy cover of tree species (>10m) is < 25%	
4. Fen indicator count is ≥ 3	TS13
4. Fen indicator count is < 3	TS9
 Cumulative cover of shrub species is ≥ 20% 	6
5. Cumulative cover of shrub species is < 20%	
6. Fen indicator count is ≥ 3	TS14
6. Fen indicator count is < 3	TS10
7. Cumulative cover of graminoid species is ≥ 20%	8
7. Cumulative cover of graminoid species is < 20%	9
8. Fen indicator count is ≥ 3	
8. Fen indicator count is < 3	
9. Fen indicator count is ≥ 3	TS16
9. Fen indicator count is < 3	TS12

5.3.2 Boreal Shield 5.3.2.1 Boreal Shield Overview Key

Vascular and/or bryophyte species cover ≥ 10%	
2. Site has ≥ 2 of the following characteristics: follow Wetland	
 Organic horizons (Of, Om, Oh) ≥ 40 cm thick 	
 Water table within 50 cm of the surface 	
 Permanently frozen within 60 cm of the surface 	
 Moisture regime wetter than moist 	
2. Site has < 2 of the above characteristics:	
 3. Coniferous trees are ≥ 75% of the canopy follow Coniferous 3. Coniferous trees are < 75% of the canopy follow Deciduous 	Ecosites Key -Mixedwood Ecosites Key
5.3.2.2 Boreal Shield Coniferous Ecosites Key	
1. White spruce is $\geq 50\%$ or balsam fir is $\geq 10\%$ of the canopy	2
1. White spruce is < 50% and balsam fir is < 10% of the canopy	
2. Balsam fir is present in the understory	
2. Balsam fir is absent from the understory	
3. Trembling aspen and/or white birch are ≥ 5% of the canopy	4
3. Trembling aspen and/or white birch are < 5% of the canopy	
4. Trembling aspen canopy cover is > white birch canopy cover	
4. Trembling aspen canopy cover is < white birch canopy cover	5
5. Jack pine is ≥ 50% of the canopy	
5. Jack pine is < 50% of the canopy	6
6. Feathermosses cover ≥ 25% of the forest floor	BS10
6. Feathermosses cover < 25% of the forest floor	BS8
7. Black spruce is ≥ 50% of the canopy	8
7. Black spruce is < 50% of the canopy	
8. Feathermosses cover ≥ 25% of the forest floor	
8. Feathermosses cover < 25% of the forest floor	BS7
9. Lichens cover ≥ 25% of the forest floor	BS3
9. Lichens cover < 25% of the forest floor	BS4

5.3.2.3 Boreal Shield Deciduous-Mixedwood Ecosites Key

1.	. White birch is ≥ 65% (¾) of the canopy	BS14
1.	. White birch is < 65% (3/3) of the canopy	2
	2. Trembling aspen and/or balsam poplar are ≥ 65% (3/3) of the canopy	BS15
	2. Trembling aspen and/or balsam poplar are < 65% (3/3) of the canopy	3
	3. White spruce is \geq 50% or balsam fir is \geq 10% of the canopy	4
	3. White spruce is < 50% and balsam fir is < 10% of the canopy	5
	4. Balsam fir is present in the understory	
	4. Balsam fir is absent from the understory	
	5. Jack pine is the leading conifer in the canopy	
	5. Jack pine is not the leading conifer in the canopy	BS13
	6. Trembling aspen cover is > white birch cover	
	6. Trembling aspen cover < white birch cover	

5.3.2.4 Boreal Shield Sparsely Vegetated Ecosites Key

1. Water table is within 50 cm of surface	
1. Water table is not within 50 cm of surface	
2. Surface material is predominantly rock	
2. Surface material is not predominantly rock	
3. Surface material is predominantly rock	
3. Surface material is not predominantly rock	

5.3.2.5 Boreal Shield Wetland Ecosites Key

1.	. Canopy cover of tree species (>2m) is ≥ 10%	2
1.	. Canopy cover of tree species (>2m) is < 10%	4
	2. Canopy cover of tree species (>10m) is ≥ 25%	
	2. Canopy cover of tree species (>10m) is < 25%	3
	3. Fen indicator count is ≥ 3	BS21
	3. Fen indicator count is < 3	BS17
	4. Cumulative cover of shrub species is ≥ 20%	5
	4. Cumulative cover of shrub species is < 20%	7
	5. Fen indicator count is ≥ 3	6
	5. Fen indicator count is < 3	BS18
	6. Ericaceous shrubs are ≥ 50% of the total shrub cover or	
	≥ 2 ericaceous species are present	BS22
	6. Ericaceous shrubs are < 50% of the total shrub cover and	
	< 2 ericaceous species are present	BS23
	7. Cumulative cover of graminoid species is ≥ 20%	
	7. Cumulative cover of graminoid species is < 20%	9
	8. Fen indicator count is ≥ 3	BS24
	8. Fen indicator count is < 3	
	9. Fen indicator count is ≥ 3	BS25
	9. Fen indicator count is < 3	BS20

5.3.3 Boreal Plain Overview Key

1. Site has ≥ 2 of the following characteristics: follow Wetland Ecosites Key

- Organic horizons (Of, Om, Oh) ≥ 40 cm thick
- · Water table within 50 cm of the surface
- · Permanently frozen within 60 cm of the surface
- · Moisture regime wetter than moist

- - 2. Site has < 10% tree (>2m) canopy cover follow Non-forested Ecosites Key
 - 3. Coniferous trees are ≥ 75% of the canopy follow Coniferous Ecosites Key
 - 3. Coniferous trees are < 75% of the canopy 4. Deciduous trees are > 75% of the canopy follow Deciduous Esceites Kon
 - 4. Deciduous trees are ≥ 75% of the canopy ... **follow Deciduous Ecosites Key**4. Deciduous trees are < 75% of the canopy **follow Mixedwood**

Ecosites Key

5.3.3.2 Boreal Plain Coniferous Ecosites Key

1. Jack pine is < 50% of the canopy 5 4. Black and/or white spruce is ≥ 25% of the canopy BP12 7. Trembling aspen and/or white birch are ≥ 10% of the canopy BP4 7. Trembling aspen and/or white birch are < 10% of the canopy BP12 8. Black spruce is < 25% of the canopy BP9

5.2.3.3 Boreal Plain Deciduous Ecosites Key

Manitoba maple is present in the canopy
Manitoba maple is absent from the canopy
2. Mountain maple is present on the site
2. Mountain maple is absent from the site
3. Balsam poplar is ≥ 25% of the canopy
3. Balsam poplar is < 25% of the canopy
4. Trembling aspen is ≥ 30% of the canopy
4. Trembling aspen is < 30% of the canopy BP11
5. White birch is ≥ 10% of the canopy BP7
5. White birch is < 10% of the canopy6
6. Balsam poplar is ≥ 10% of the canopy BP15
6. Balsam poplar is < 10% of the canopy
7. Black and/or white spruce and/or fir are $\geq 20\%$ of the canopy BP10
7. Black and/or white spruce and/or fir are < 20% of the canopy
8. Site has ≥ 2 of the following species present
bearberry golden-bean
 common yarrow goldenrod
• bluebell
8. Site has < 2 of the above species present

5.3.3.4 Boreal Plain Mixedwood Ecosites Key

1. Jack pine is ≥ 20% of the canopyBP4	ı
1. Jack pine is < 20% of the canopy	
2. White birch is ≥ 20% of the canopy	l
2. White birch is < 20% of the canopy	3
3. Conifer species are ≥ 50% of the canopy	ŀ
3. Conifer species are < 50% of the canopy	,
4. Black spruce and ≥ 1 of the following are present BP14	ŀ
blueberry Labrador tea	
lingonberry green alder	
4. Black spruce and all of the above listed species are absent	;
5. ≥ 2 of the following are trueBP1:	
balsam fir present	
 > 10% feathermoss 	
 no beaked hazel 	
5. < 2 of the above are true BPS)
6. White birch is ≥ 10% of the canopy BP?	7
6. White birch is < 10% of the canopy	7
7. Balsam poplar is ≥ 10% of the canopyBP1:	5
7. Balsam poplar is < 10% of the canopy	3
8. Black and/or white spruce and/or balsam fir are ≥ 20%	
of the canopy BP10)
8. Black and/or white spruce and/or balsam fir are < 20%	
of the canopy)
9. Site has ≥ 2 of the following species present BPS	,
 bearberry golden-bean 	
 common yarrow goldenrod 	
bluebell	
9. Site has < 2 of the above species present BP6	5
5.3.3.5 Boreal Plain Non-Forested Ecosites Key	
1. Site is predominantly uplandBP	ı
1. Site is predominantly wetland	
2. Shrub cover is ≥ 20%	

5.3.3.6 Boreal Plain Wetland Ecosites Key

. Canopy cover of tree species (>2m) is ≥ 10%	2
. Canopy cover of tree species (>2m) is < 10%	4
2. Canopy cover of tree species (>10m) is ≥ 25%	BP18
2. Canopy cover of tree species (>10m) is < 25%	3
3. Fen indicator count is ≥ 3	BP23
3. Fen indicator count is < 3	BP19
4. Cumulative cover of shrub species is ≥ 20%	5
4. Cumulative cover of shrub species is < 20%	7
5. Fen indicator count is ≥ 3	
5. Fen indicator count is < 3	BP20
6. Ericaceous shrubs are ≥ 50% of the total shrub cover or	
≥ 2 ericaceous species are present	BP24
6. Ericaceous shrubs are < 50% of the total shrub cover and	
< 2 ericaceous species are present	BP25
7. Cumulative cover of graminoid species is ≥ 20%	8
7. Cumulative cover of graminoid species is < 20%	10
8. Fen indicator count is ≥ 3	BP26
8. Fen indicator count is < 3	9
9. Site has ≥ 3 of the following species present	BP28
 cattail western dock 	
 wild mint water parsnip 	
 water hemlock marsh skullcap 	
 seaside arrow grass 	
9. Site has <3 of the above species present	BP21
10. Fen indicator count is ≥ 3	
10. Fen indicator count is < 3	DC22

5.3.4 Prairie

5.3.4.1 Prairie Ecosites Key

Γree cover is ≥ 10%	2
Free cover is < 10%	8
2. Coniferous trees are ≥ 25% of the canopy	3
2. Coniferous trees are < 25% of the canopy	6
3. Coniferous trees are ≥ 75% of the canopy	4
3. Coniferous trees are < 75% of the canopy	5
4. White spruce is ≥ 75% of the canopy	PR6
4. White spruce is < 75% of the canopy	PR2
5. Lodgepole pine is the leading conifer in the canopy	
5. Lodgepole pine is not the leading conifer in the canopy	PR7
6. Trembling aspen is \geq 80% of the canopy and no green ash	
in the understory	PR4
6. Trembling aspen is < 80% of the canopy or green ash in the und	
7. Balsam poplar is ≥ 20% of the canopy and the moisture regim	e is
moist to moderately moist	
7. Trembling aspen is < 80% of the canopy or the moisture regin	ne is
not moist to moderately moist	
8. Moisture regime is dry to fresh	PR1
8. Moisture regime is not dry to fresh	

5.4 Interpreting the Fact Sheets

The fact sheets for each of the four ecozones all follow a parallel structure and each is composed of 10 sections (Figure 8). For the most part, each fact sheet is a composite or average representation of many individual plots. For this reason, finding conditions in the field that exactly match the features would be unusual.

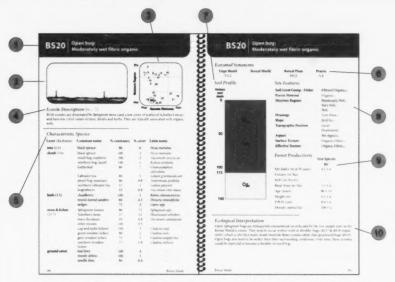


Figure 8. The 10 primary sections of Saskatchewan's forest ecosite fact sheets.

The title section identifies the ecosite coding (*e.g.*, BS20), the common descriptive name of the ecosite (*e.g.*, Open bog: Moderately wet fibric organic), and the ecozone that the ecosite is associated with (*e.g.*, Boreal Shield). The species and soil conditions used to name the site are the most dominant or are diagnostic of the ecosite.

The silhouette profile provides a pictorial representation of the stand composition and structure associated with each ecosite. The average tree species composition and canopy covers are proportionally represented by the tree silhouettes. Similarly, the tree heights are also reflected to scale. The substrate (e.g., soil) conditions reflected in each profile are the most frequently encountered parent materials and slope conditions associated with the ecosite.

A legend which identifies the species illustrated on the profile is provided in Figure 9.

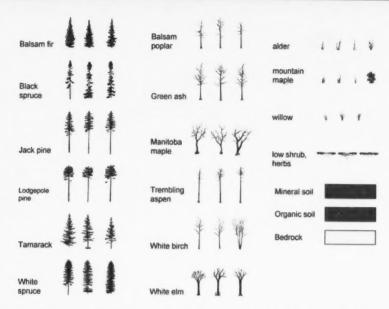


Figure 9. The profile illustrations associated with species depicted on the ecosite fact sheets.

The edatopic grid presents the comparative position of each ecosite in each ecozone according to relative moisture and species richness. The edatopic grid illustrates the relative position of each ecosite according to soil moisture regime and species richness. The scale of each axis represents the range of conditions measured for all ecosites within each ecozone. Therefore, the scale of the edatopic grid axes differs among ecozones. For each ecosite the moisture regime coordinate represents the mean soil moisture regime for all of the plots associated with the ecosite. The species richness coordinate represents the mean number of vascular plants (*i.e.*, excluding mosses and lichens) encountered on each ecosite in a 10 m x 10 m sample area.

The ecosite description provides a narrative depiction of the attributes associated with the ecosite. It usually includes the identification of frequently encountered or diagnostic species or features that are indicative of the ecosite. The description may also present tips to help distinguish between similar ecosites. This section identifies the number (n) of relevés (*i.e.*, plots) that were used to classify and describe the ecosite. Generally, relevé is used in this guide to refer to the vegetation assessment while the term 'plot' refers to entire site assessment. Ecosites with larger 'n' value are more commonly encountered across the landscape than those with smaller 'n' values.

The characteristic species section lists all of the trees, shrubs, herbs, and mosses and lichens that were found in \geq 40 percent of the relevés upon which the ecosite was described. The scientific name (*i.e.*, Latin binomial) of each listed species generally follows the nomenclature convention used by the W.P. Fraser Herbarium, University of Saskatchewan, (Harms 2006), the *List of Mosses of North America North of Mexico* (Anderson, Crum & Buck 1990) and *A Checklist of Sphagnum in North America North of Mexico* (Anderson 1990). Section 7 of this guide provides a comprehensive listing of the common and scientific names of species referenced in this guide.

For each species, constancy and percent cover are presented. The constancy figure represents the percent of the ecosite's relevés in which the species occurred. The percent cover represents the average cover of the species based only on the relevés in which it occurred.

Species richness is a basic measure of plant diversity, represented in this guide by the average number of species within each plant physiognomy class (e.g., tree, shrub) averaged across all of the plots of the ecosite. The species represented by this number are almost exclusively native species because sampling was restricted to undisturbed sites.

The forest floor categories reflect the non-living surface condition of the ecosites. Possible categories include needle litter, leaf litter, woody material, rock, soil, and water.

The ecozonal synonyms section identifies comparable ecosites found in other ecozones. In some cases, ecosites are unique to an ecozone and have no documented equivalent, analogous, or similar condition in other ecozones.

The soil profile section identifies the range of soil horizons that were encountered within the plots from which the ecosite was described, as well as the proportion of the plots in which they occurred. Specifically, the subscript value (which can range from 1 through 10) refers to the proportion of plots in which a particular horizon was present (e.g., 7 = 70%). It is important to note that all of the horizons presented would not necessarily be associated with one soil pit. The figure represents a composite of the dominant soil horizons associated with the ecosite.

The average horizon start depth (*i.e.*, uppermost occuring depth) associated with each horizon is presented (in cm). The commonly encountered horizons are summarized in **Table** 7. For a more thorough and complete description of soil horizons and modifiers, refer to The Canadian System of Soil Classification (Soil Classification Working Group 1998).

Table 7. Soil horizon labels and modifiers used in this guide.

Horizon	Description
L	The L - layer is the litter layer and consists of the relatively unaltered remains or plants.
F	The F - layer is the fibric layer which lies beneath the litter layer. It is composed o partially decomposed plant material but is sufficiently well preserved so as to allow identification of its origin (Pritchett 1979).
Н	The H - layer is the <u>h</u> umic layer which consists of predominantly decomposed plant material.
A	The A horizon is the uppermost mineral soil horizon and is considered to be the leached zone and a zone of humic accumulation (Pritchett 1979).
В	The B horizon is usually the next horizon below the 'A' and is considered to be the area of accumulation (e.g., of clay, iron, aluminium).
AB	AB horizons are transition horizons that share characteristics of both the A and I horizons.
С	The C horizon is the unweathered parent material which may be affected by the processes of mottling, gleying or accumulation of carbonates.
0	The O horizon is made up of organic material, typically originating from mosses rushes, and woody materials in various states of decomposition.
R	The R horizon usually represents bedrock, but may infrequently refer to rocks.
Horizon modifier ⁵	Description
e	<i>gluviated</i> - as in Ae. This mineral soil modifier indicates that the horizon has los iron, aluminium, organic material, or clay.
f	ferrum (Latin for iron) - as in Bf. This mineral or organic soil modifier indicates that the horizon has accumulated iron, aluminium, and/organic matter. When combined with the organic horizon (i.e., Of), it indicates that the horizon predominantly consists of fibric material.
g	gray colours (technically lowercase 'g' refers to mottling while a capital G refers to
G	gleying). These mineral soil modifiers indicate that the horizon is developing in the periodic or continuous presence of water.
h	<u>humic</u> - as in Ah. This mineral or organic soil modifier indicates that the horizon has been enriched with organic matter. When combined with the organic horizon (<i>i.e.</i> , Oh), it indicates that the horizon predominantly consists of <u>humic</u> material.
	juvenile - as in Aej. This mineral soil modifier is used in combination with another modifier to indicate a weak or poorly discernable expression of the other modifier.
k	carbonate - as in Ck. This mineral soil modifier indicates that calcium and/or magnesium carbonates are present in the horizon.
m	as in Bm. This mineral or organic soil modifier indicates that the horizon has been slightly altered by hydrolysis, oxidation, and/or solution, which may result in only a slight accumulation of iron, aluminium, or clay or be expressed as a change in color and/or structure (Soil Classification Working Group 1998). When combined with the organic horizon (i.e., Om) it indicates that the horizon predominantly consists of mesic material.

Table 7. Soil horizon labels and modifiers used in this guide., cont'd

Horizon modifier ⁵	Description
t	as in Bt. This mineral soil modifier indicates a horizon that has been enriched with clay that has moved down from an overlying horizon.
Z	frozen - as in Cz. This modifier indicates that the horizon is frozen.

³ Each soil horizon (e.g., A, B, C) may have one or more suffix modifier letters which indicate modification to that layer. Only the commonly used modifiers are presented in this guide.

The site features section of the fact sheet identifies soil features such as soil great group, order, and textures; moisture features such as moisture regime and drainage, and topography features such as topographic position, slope, and aspect. The composition of each feature is presented to the nearest 10%. For example, an ecosite with a surface texture of LS₆ - SiS₄ had loamy sand on 60% of the plots and silty sand on 40% of the plots. While the sum of the subscript values for each feature should equal 10 (i.e., 100%), rounding may produce a composition percentage that can be greater or less than 100%.

The soil orders commonly referenced in this guide are listed in Table 8.

Table 8. Soil orders identified in this guide.

Regosol Luvisol

Cryosol (organic) Luvisol
Gleysol Chernozem
Brunisol Podzol

Soil Orders

For a description of the soil orders and great groups refer to The Canadian System of Soil Classification (Soil Classification Working Group 1998).

Soil texture is identified for both the surface (e.g., typically the A horizon) and effective conditions. For the purpose of this guide, effective texture can be described as the finest soil texture encountered within 50 cm of the surface.

Soil textures are arranged in the texture triangle (Figure 10) according to the proportion of sand, silt, and clay (e.g., particle sizes) that they contain. Procedures which describe how to estimate the texture of soils in the field can be found in the "Field Manual for Describing Soils in Ontario" (Ontario Centre for Soil Resource Evaluation 2001). In addition to the texture triangle, soil textures can be arranged linearly along a gradient from coarse to fine. Figure 11 presents the texture gradient for the 13 soil textures identified in this guide. The linear gradient represents an ordering of the average particle size according to the percent contribution of each texture (i.e., sand, silt, clay).

Organic

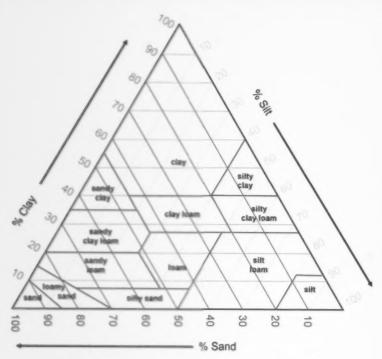


Figure 10. The soil texture triangle (adapted from Brady, 1984).



Coarse Figure 11. The soil texture gradient.

Soil moisture regime is an important factor which helps determine the suitability of a site for many species. The soil moisture regime of a site is determined in part by the soil texture and in part by the presence of permanent or periodic water saturation. This guide uses 11 classes of moisture regime ranging from dry to very wet which are presented in **Figure 12** along with a brief description.

Soil drainage classes (**Figure 13**) provide an indication of how rapidly water percolates through or remains near the surface of a site. This feature, like soil moisture regime, is based on soil texture as well as evidence of water stagnation (*e.g.*, mottling or gleying). While the detailed procedures for determining soil moisture regime and soil drainage regime can be found in the "Field Manual for Describing Soils in Ontario" (Ontario Centre for Soil Resource Evaluation 2001), a simplified deep mineral soil moisture regime designation table is iliustrated in **Table 9**. The steps to determining soil moisture regime are:

- 1. Determine the effective soil texture (finest texture in the top 50 cm),
- 2. Determine if mottles or gleying are present,
- Follow the appropriate column and row in table 9 for texture and mottling depth to the defined soil moisture regime

Table 9. A simplified mineral soil moisture regime designation table for soils > 120 cm.

		xture is:	1. If soil te	
	All other finer textures	fS or LfS or SifS	m-cS or Lm-cS	All (mostly) par- ticle sizes > 2 mm
		ture regime is:	. Then the mois	2
	fresh	moderately fresh	moderately dry	dry
4. Then moisture regime is:	3. Unless mottles are detected within cm:			
very moist	25	20	15	
moist ·	45	40	30	
moderately mois	60	60	50	
very fresh	120	100	80	
fresh		150	100	
moderately fresh			180	

Notes:

- Texture Abbreviations: m-cS: medium to coarse Sand fS: fine Sand LfS: Loamy fine Sand SifS: Silty fine Sand
- · If gleying is detected at the above depths; then designate the moisture regime as one class wetter
- · Adapted from Ontario Centre for Soil Resource Evaluation 2001

Dry	Soil retains moisture for negligible duration following precipitation. Water percolation is extremely rapid.		
Moderately dry	Soil retains moisture for a brief duration following precipitation. Water percolation is rapid.		
Moderately fresh	Soil retains moisture for short periods following precipitation. Water percolation is somewhat rapid.		
Fresh	Soil retains moisture for moderately short periods following precipitation Water percolation is moderate.		
Very fresh	Soil retains moisture for substantial periods following precipitation. Water percolation is slow.		
Moderately moist	Soil retains abundant moisture for most of the growing season. Water percolation is slow. Seepage may be present and mottling may occur below 20 cm.		
Moist	Soil is wet for a substantial part of the growing season. Seepage is common with mottling below 20 cm.		
Very Moist	Soil is wet for most of the growing season. Seepage and mottling are usually present. Weak gleying may occur.		
Moderately wet	Soil is wet for nearly the entire growing season. Seepage, mottling, and gleying are common in mineral soils. Organic soils are also common.		
Wet	Water table is at or near the surface for most of the year. Gleying is common in mineral substrates. Organic soils are common.		
Very wet	The water table is at or above the surface all year. Soils are organic or gleyed mineral.		

Figure 12. The soil moisture regime gradient (adapted from Nesby 1997).

Very rapid	Associated with coarse textured soils (LfS \rightarrow cS) with >35% of particles > 2 mm in size.
Rapid	Associated with coarse textured soils (LfS \rightarrow cS) with few particles > 2 mm.
Well	Associated with medium to fine textured soils (cSL \rightarrow SiCL)
Moderately well	Associated with very fine textured soils (SiC \rightarrow SC \rightarrow C) or mottles present below 50 cm
Imperfect	Any texture class associated with mottles above 50 cm
Poor	Any texture class associated with mottles and gleying above 50 cm
Very poor	Organic soils or mineral soils with pronounced gleying above 50 cm
	igure 13. The sail drainean desses

Figure 13. The soil drainage classes (adapted from the Ontario Centre for Soil Resource Evaluation 2001).

The seven soil drainage classes used in this guide can be found in Figure 13.

Topographic position refers to the location of the site with respect to the surrounding landscape. Ecosites occupying lower slope positions typically receive more moisture and nutrients from both overland and subsurface flow. Ecosites occupying crest positions will receive much of their moisture and nutrients from precipitation; similarly some ecosites such as bogs, which usually occupy depressions or level positions, also receive almost all of their nutrients from precipitation. For this reason, ecosites occupying these topographic positions will tend to be clustered on the same side of the edatopic grid. Figure 14 presents the seven topographic positions referred to in the guide.

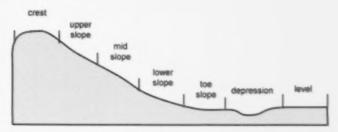


Figure 14. The topographic positions.

Slope refers to the angle of the site (in degrees) as it deviates from level. It quantifies the magnitude of the change from level and provides more context for the topographic position. Seven slope classes were used to describe the sites in this guide (Figure 15).

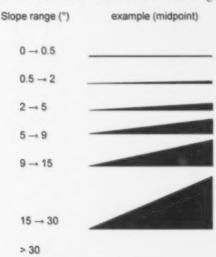


Figure 15. The slope classes.

Aspect refers to the compass direction that the site faces (*i.e.*, when facing downhill) however a level site has no aspect. Since different aspects receive solar radiation differently (*e.g.*, north aspects tend to be cooler and south aspects warmer), aspect can affect the development of vegetation that will occupy the site. Aspects of the ecosites are grouped according to the four cardinal directions as well as a 'no aspect' class (**Figure 16**).

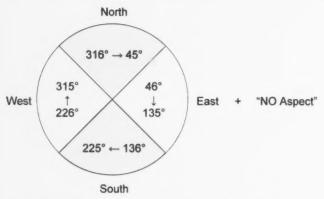


Figure 16. The azimuths associated with the five aspect classes.

The forest productivity section provides growth and yield information about each tree species associated with the ecosite. The tree species abbreviations follow the convention identified in the Saskatchewan Forest Vegetation Inventory standards (Forest Service 2004) and are summarized in Table 10.

Summary statistics (*i.e.*, mean and confidence interval at the 95% confidence level) are provided for both the directly measured attributes (*e.g.*, tree height) and the derived attributes (*e.g.*, site index). Where the sample size was insufficient, individual fields may be blank. Since these values are derived from plot collected data, small sample sizes may affect these values.

The features described in the productivity section include: site index, mean annual increment, basal area, age, height, diameter at breast height, and stem density.

Site index values are useful for assessing site quality or productivity. Specifically, site index reflects the relationship between tree height and age. It is a useful indicator for the value of the site for tree production because tree height is relatively independent of stem density. The site index values represented in this guide are the average tree height (in m) at 50 years .

Table 10. Tree species and their abbreviations identified in this guide.

Common Tree Species Name	Tree Species Abbreviation		
balsam fir	bF		
balsam poplar	bP		
black spruce	bS		
green ash	gA		
jack pine	jP		
lodgepole pine	1P		
Manitoba maple	mM		
tamarack	tL		
trembling aspen	tA		
white birch	wB		
white elm	wE		
white spruce	wS		

The mean annual increment (MAI) value represents the cumulative tree volume divided by the total tree age; it is expressed in m³/ha/year. Mean annual increment represents the yearly growth of the stand and this value multiplied by the area of the forest represents the theoretical maximum sustainable harvest or the long-term sustained yield.

Basal area represents the cross sectional area of trees (in m²) on a per hectare basis. Since tree volume is a function of tree height and cross section area, it is useful as a measure of fibre volume. It is also a reasonable measure of stand density (Husch *et al.* 1982).

The average age of the tree species on the ecosite represents the age since germination and not necessarily age since last disturbance. Trees selected for aging were co-dominant in the canopy. Ecosites with deciduous tree species may not always have an age in this field due to the difficulty associated with counting the rings of hardwoods.

Tree height is the average tree height for each species (by ecosite) of all the trees in the plots with a diameter at breast height of greater than 7.5 cm.

Diameter at breast height (1.3 m) is the average diameter associated with each species (by ecosite) of all the trees in the plots with a diameter at breast height of greater than 7.5 cm.

Stem density is a measure of the number of trees (with a d.b.h. greater than 7.5 cm) per hectare. Density is useful for making assessments of ecosystem structure and provides an indication of site occupancy or utilization by trees.

Volume represents the average stand gross merchantable volume established to the 30/05 utilization tree-length series (e.g., 30 cm stump height, 5 cm inside bark top diameter limit) (Gelhorn and Carter 2009).

The ecological interpretations section provides a description of how the site may respond to disturbance (e.g., fire, harvesting) and may also include a prediction about the successional trajectory of the ecosite. Where available, information about unique features or associated conditions is also included.

5.5 Cautionary Notes & Limitations

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The ecosite classifications for the four ecozones were assembled from nearly 2000 individual site assessments. These sites were identified through a process similar to stratified random sampling however a conscious effort was also made by field crews to sample unique or even rare ecosystems that were observed on the ground. Yet despite these approaches and efforts, it is likely that some site conditions remain unsampled.

When readers encounter a site that does not fit well within the framework of the guide, it is recommended that the reader find the ecosite in the guide which it most closely resembles and then note the differences.

Each ecosite fact sheet summary represents the average natural and mature site condition. Young (e.g., <40 years old) or modified sites may still be classified according to the guide, but elements or specific features of these sites may vary from the mature natural condition. For both young and modified sites, the reader should anticipate differences in vegetation and are encouraged to supplement their ecosite evaluation with features such as moisture regime and other soil attributes.

6.1 TAIGA SHIELD

Keys & Fact Sheets

6.1 Taiga Shield Keys & Fact Sheets

Ecosites of the Taiga Shield

TS1 - Jack pine / bearberry / lichen: Dry nonsoil

TS2 - Jack pine - black spruce / lichen: Moderately dry sand

TS3 - White birch / lingonberry / lichen: Moderately dry loamy sand

TS4 - Black spruce / lingonberry / feathermoss: Moderately dry silty sand

TS5 - Trembling aspen / prickly rose - twinflower: Moderately dry sand

TS6 - White birch - spruce / green alder: Moderately fresh sand

TS7 - White birch - black spruce / lingonberry: Moderately dry loamy sand

TS8 - White birch / river alder / feathermoss: Very moist clay loam

TS9 - Black spruce treed bog: Moderately wet mesic organic

TS10 - Labrador tea shrubby bog: Very wet humic organic

TS11 - Graminoid bog: Moderately wet fibric organic

TS12 - Open bog: Moderately wet mesic organic

TS13 - Tamarack treed fen: Very moist fibric organic

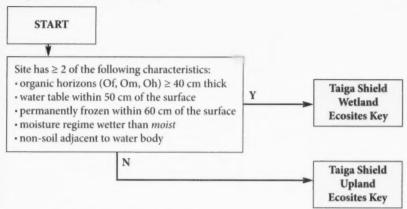
TS14 - Labrador tea shrubby fen: Very moist fibric organic

TS15 - Graminoid fen: Very wet fibric organic

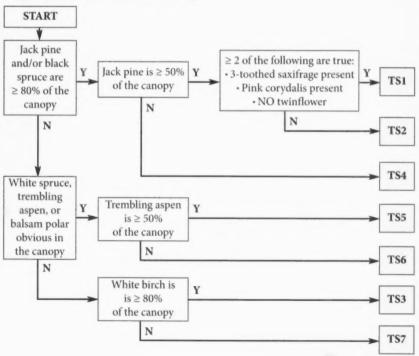
TS16 - Open fen: Moderately wet mesic organic

TS17 - Lichen rocky shore: Very wet nonsoil

Taiga Shield Overview Key

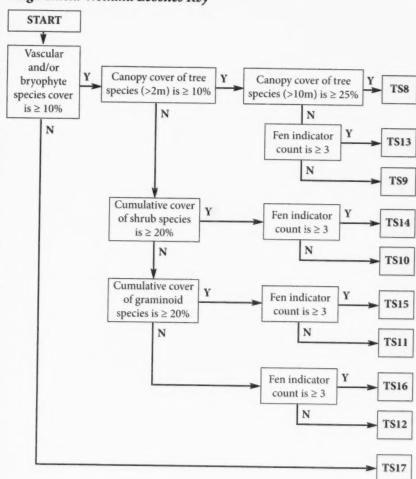


Taiga Shield Upland Ecosites Key

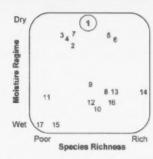


6.1 Taiga Shield Keys & Fact Sheets

Taiga Shield Wetland Ecosites Key







Ecosite Description (n = 6)

TS1 ecosites are typically occupied by jack pine although black spruce and/or white birch may be locally abundant. Tree growth is slow and heights rarely exceed 10 m. Canopy cover is usually low (<10%) and openings in the stand are common. Exposed bedrock is characteristic of these sites and, where soil does occur, it consists of very shallow silty loams. These stands are poor in vascular plant species, have a high cover of ground lichens, and have an open, park-like appearance. This type of forest has been described by Rowe (1972) as subarctic woodland.

Characteristic Species

Layer (Richness)	Common name	% constancy	% cover	Latin name
tree (1.5)	jack pine	83	9	Pinus banksiana
shrub (3.0)	bearberry	67	22	Arctostaphylos uva-ursi
	common juniper	67	2	Juniperus communis
	pin cherry	50	0.7	Prunus pensylvanica
herb (8.2)	three-toothed saxifrage	83	0.9	Saxifraga tricuspidata
	parsley fern	83	0.5	Cryptogramma acrostichoides
	pink corydalis	67	0.4	Corydalis sempervirens
	tickle grass	67	0.4	Agrostis scabra
	fireweed	50	0.7	Chamerion angustifolium
	rocky mountain fescue	50	0.2	Festuca saximontana
moss & lichen	hair-cap mosses	83	0.7	Polytrichum spp.
(28.0)	other mosses	83	5	
	cup and spike lichens	100	12	Cladonia spp.
	green reindeer lichen	100	3	Cladina mitis
	other lichens	100	37	

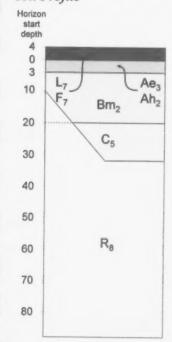
TS1 Jack pine/bearberry/lichen: Dry nonsoil

Layer (Richness)	Common name	% constancy	% cover	Latin name
ground cover	needle litter	100	3	
	woody debris	100	2	
	leaf litter	83	5	*
	rock	50	22	

Ecozonal Synonyms

Taiga Shield	Boreal Shield	Boreal Plain	Prairie
	NA	NA	NA

Soil Profile



Site Features

Soil Great Group - Order	Nonsoil ₅
	Dystric Brunisol3
	Regosol ₂
Parent Material	Rocks
	Morainal ₂
	Glacio-fluvial2
	Fluvial ₂
Moisture Regime	Dry7
	Moderately Dry2
	Moderately Fresha
Drainage	Very Rapid-
	Rapida
Slope	(>30)3
	(15-30)3
	(5-9)2
	$(2-3)_2$
Topographic Position	Upper Slopes
	Mid-Slope
	Crest ₂
Aspect	East ₅
	South ₃
	North ₂
Surface Texture	Sands
	Silty Sands
	Silty Loams
Effective Texture	Rocks
	Silty Loams
	Sand ₂

TS1 Jack pine/bearberry/lichen: Dry nonsoil

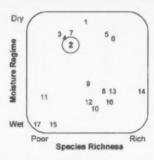
Tree Species		
5P		
7.8 ± 5.1		
12.8 ± 25.7		
0.22 ± 0.44		
5.7 ± 6.4		
71 ± 26		
7.7 ± 3.1		
15.3 ± 8.0		
325 ± 328		

Ecological Interpretation

These sites are restricted to upper- and mid-slope positions. They are commercially unproductive and tree growth is relatively slow following fire or any other stand-replacing disturbance. The exposed bedrock and shallow soils preclude rapid tree growth and it is not uncommon for these sites to support very stunted and open stands of trees for extended periods. Moss and lichen species richness is relatively high. The vascular plant community is characteristic of sites that have very low nutrient and moisture regimes and are frequently disturbed by fire. Older forest inventories often classified these sites as treed rock.







Ecosite Description (n = 19)

TS2 ecosites are commonly occupied by open, park-like stands of slow-growing and low-stature jack pine. Black spruce and/or white birch may occur on the site but rarely make up more than ten percent of stand tree cover. The shrub cover on these sites is almost exclusively ericaceous shrubs, and the area covered is relatively low. Herbs are relatively sparse. This ecosite has the greatest consistent cover of lichens in the Taiga Shield and is important winter caribou habitat. Prevalence of cup and spike lichens is indicative of recent stand-replacing disturbance while dominance of reindeer lichens indicates a more mature condition and a greater time-since-disturbance (usually by fire). Heavy use of these sites by caribou is thought to leave them with a higher proportion of less palatable lichen species (e.g., woolly coral lichens)(van der Wal, 2001).

Characteristic Species

Layer (Richness)	Common name	% constancy	% cover	Latin name
tree (2.6)	jack pine	100	34	Pinus banksiana
	black spruce	63	12	Picea mariana
	white birch	53	11	Betula papyrifera
shrub (3.6)	bearberry	89	5	Arctostaphylos uva-ursi
	lingonberry	84	15	Vaccinium vitis-idaea
	black spruce	74	4	Picea mariana
	white birch	53	0.4	Betula papyrifera
	crowberry	42	5	Empetrum nigrum
	Labrador tea	42	2	Ledum groenlandicum
herb (3.4)	northern bastard toadflax	74	2	Geocaulon lividum
	fireweed	47	0.4	Chamerion angustifolium
moss & lichen	Schreber's moss	74	3	Pleurozium schreberi
(29.3)	hair-cap moss	53	0.5	Polytrichum spp.
	Dicranum moss	58	0.6	Dicranum spp.
	other mosses	95	2	
	stair-step moss	42	0.4	Hylocomium splendens
	green reindeer lichen	100	19	Cladina mitis

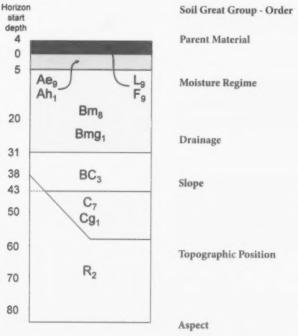
Jack pine - black spruce/lichen: Moderately dry sand TS2

Layer (Richness)	Common name	% constancy	% cover	Latin name
	cup and spike lichens	100	7	Cladonia spp.
	grey reindeer lichen	68	7	Cladina rangiferina
	northern reindeer lichen	58	5	Cladina stellaris
ground cover	needle litter	100	16	
	woody debris	95	7	-
	leaf litter	84	16	*
	rock	58	13	

Ecozonal Synonyms

Taiga Shield	Boreal Shield	Boreal Plain	Prairie
	BS3 + BS7	BP2	NA

Soil Profile



Site Features	
Soil Great Group - Order	Dystric Brunisol ₉ Regosol ₁
Parent Material	Morainals Fluvials
Moisture Regime	Glaciolacustrine ₂ Moderately Dry ₇ Moderately Fresh ₃ Moderately Moist ₁
Drainage	Very Moista Rapida Very Rapida
Slope	Imperfect ₁ (15-30) ₃ (9-15) ₂ (5-9) ₂ (2-5) ₂
Topographic Position	(0.5-2) ₁ Crest ₃ Upper Slope ₃ Mid-Slope ₂
Aspect	Lower Slope: Toe Slope: South
Aspect	East ₂ North ₂ West ₁

TS2 | Jack pine - black spruce/lichen: Moderately dry sand

Site Features

Aspect	No Aspecti
Surface Texture	Sanda
	Loamy Sand
	Silty Sand2
	Silty Loam ₂
Effective Texture	Sands
	Loamy Sandz
	Silty Loam ₂
	Silty Sand

Forest Productivity

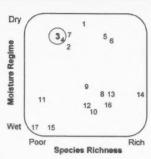
	Tree Species			
	jΡ	bS	wB	
Site Index (m at 50 years)	9.0 ± 1.2	7.9 ± 2.4	8.0 ± 39.4	
Volume (m³/ha)	25.3 ± 11.8	8.6 ± 16.9	1.6 ± 6.9	
MAI (m³/ha/yr)	0.49 ± 0.20	0.16 ± 0.35	$0.10 \pm x$	
Basal Area (m²/ha)	9.0 ± 2.2	2.6 ± 3.3	1.0 ± 2.0	
Age (years)	65 ± 9	77 ± 16	52 ± 19	
Height (m)	8.4 ± 0.9	8.5 ± 1.8	8.7 ± 4.6	
D.B.H. (cm)	11.8 ± 1.1	10.7 ± 1.6	8.8 ± 0.7	
Density (stems/ha)	835 ± 231	243 ± 250	167 ± 287	

Ecological Interpretation

These ecosites are relatively dry and typically associated with a sandy substrate although they may be bedrock controlled about 20% of the time. Following fire or other disturbance, these sites usually return to dominance by pine provided an adequate cone crop existed prior to disturbance. The shrub and herb community is typical of nutrient poor, xeric sites frequently disturbed by fire. Most of the living ground cover is comprised of drought-tolerant mosses and lichens. The sites are commonly on upper- and mid-slope positions but may occupy lower slope positions as well. The ecosite is commonly associated with glacial features such as eskers and drumlins. These ecosystems may also be found on sandy outwash plains.







Ecosite Description (n = 13)

TS3 ecosites are almost always pure birch stands, often with minor amounts of shrubby black spruce. Black spruce may also occur in the overstorey, but rarely exceeds 10% of stand canopy cover. Trembling aspen and jack pine are occasionally present but with very low cover values (i.e., <3%). Small amounts of ericaceous shrubs are found on these sites as well as the occasional willow. Most of the ground cover is leaf litter and very few (if any) herbs are present. Lichens and mosses are present but have low cover. In addition to being found on very shallow-to-bedrock conditions, these sites frequently have surface exposures of rock.

These sites are very similar to the TS7 ecosite. TS3 ecosites are distinguished from TS7 ecosites by having a lower proportion of black spruce, much lower incidence of northern Labrador tea, crowberry, and northern bastard toad flax, lower proportions of feathermoss and, as would be expected, relatively more leaf litter and less needle litter on the ground.

Layer (Richness)	Common name	% constancy	% cover	Latin name
tree (2.0)	white birch	100	32	Betula papyrifera
	black spruce	77	4	Picea mariana
shrub (4.1)	lingonberry	100	10	Vaccinium vitis-idaea
	Labrador tea	77	9	Ledum groenlandicum
	black spruce	69	4	Picea mariana
	white birch	54	2	Betula papyrifera
	willows	46	6	Salix spp.
	bearberry	46	1	Arctostaphylos uva-ursi
herb (1.6)				
moss & lichen	Schreber's moss	92	1	Pleurozium schreberi
(33.5)	stair-step moss	77	3	Hylocomium splendens
	hair-cap moss	62	0.5	Polytrichum spp.
	Dicranum moss	62	0.6	Dicranum spp.
	other mosses	100	3	
	cup and spike lichens	100	0.9	Cladonia spp.
	green reindeer lichen	92	2	Cladina mitis
	other lichens	77	10	

TS3

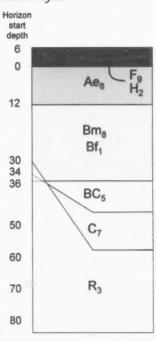
White birch/lingonberry/lichen: Moderately dry loamy sand

Layer (Richness)	Common name	% constancy	% cover	Latin name
ground cover	leaf litter	100	41	
	woody debris	92	8	
	rock	85	12	-
	needle litter	62	0.4	

Ecozonal Synonyms

Taiga Shield	Boreal Shield	Boreal Plain	Prairie
	BS14	NA	NA

Soil Profile



Site Features

Soil Great Group - Order	Dystric Brunisola Folisol Organic ₂
	Regosol ₁
Parent Material	Morainal
	Fluvial ₂
	Organic ₂
Moisture Regime	Moderately Dry6
0	Moderately Fresh ₂
	Dry ₁
	Moderately Wet
Drainage	Very Rapid ₆
_	Rapid ₃
	Very Poor
Slope	$(5-9)_4$
	(15-30)3
	(9-15)2
	(2-5)1
	$(0.5-2)_1$
Topographic Position	Lower Slopes
	Crest ₂
	Upper Slope ₂
	Mid-Slope
Aspect	South ₄
	North ₃
	West ₂
	East ₁
	No Aspecti
Surface Texture	Loamy Sands
	Sand ₄
	Silty Sand
	Sandy Loam

TS3 White birch/lingonberry/lichen: Moderately dry loamy sand

Site Features

Effective Texture

Loamy Sand₃

Rock₂

Silty Sand₁

Sandy Loam₁

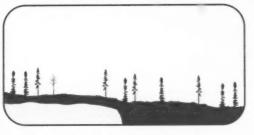
Forest Productivity

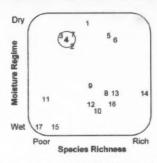
	iree species		
	jР	bS	wB
Site Index (m at 50 years)	$10.1 \pm x$	5.8 ± 5.4	7.8 ± 2.1
Volume (m³/ha)		1.0 ± 2.9	9.8 ± 15.2
MAI (m³/ha/yr)		$0.08 \pm x$	0.25 ± 0.39
Basal Area (m²/ha)	$1.2 \pm x$	1.0 ± 0.5	4.5 ± 3.4
Age (years)	40 ± 25	102 ± 36	63 ± 12
Height (m)	$8.2 \pm x$	6.7 ± 2.1	8.0 ± 1.7
D.B.H. (cm)	$8.7 \pm x$	10.2 ± 3.1	9.5 ± 0.6
Density (stems/ha)	$200 \pm x$	120 ± 56	570 ± 366

Ecological Interpretation

While somewhat similar to TS1 ecosites, these sites are more commonly found in lower slope positions, and are sometimes associated with talus slopes.

This ecosite is relatively dry, very unproductive, and frequently controlled by rocks, boulders, and bedrock. Following fire or other disturbance, these sites will usually return to being birch dominated as the birch readily regenerates from root collar sprouts and, with the virtual absence of conifers, there are no other candidates for dominant tree. In the absence of fire or other disturbance, the proportion of black spruce is likely to increase over time as this species is able to reproduce vegetatively by the process of lower branch layering. The very open nature of these sites supports a relatively diverse lichen and moss community.





Ecosite Description (n = 57)

TS4 ecosites are nearly always pure black spruce stands, with minor amounts of white birch in the overstorey. Advanced growth of black spruce is consistently present across this ecosite. This ecosite is characterized by low but constant cover of ericaceous shrubs as well as the occasional willow. Northern Labrador tea is a notable species that is present in ecosites of the Taiga Shield. Bog bilberry is also present about one-third of the time but with a cover of <2%. The most common herb found on these sites is northern bastard toadflax, but it occurs with only about 40% constancy and low cover. These sites often have nearly equal proportions of lichens and feathermosses and other bryophytes. TS4 is the most common upland ecosite of the Taiga Shield ecozone.

Characteristic Sp.	ecies
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Layer (Richness)	Common name	% constancy	% cover	Latin name
tree (1.9)	black spruce	98	29	Picea mariana
	white birch	47	4	Betula papyrifera
shrub (4.5)	lingonberry	100	14	Vaccinium vitis-idaea
	Labrador tea	88	5	Ledum groenlandicum
	black spruce	86	9	Picea mariana
	crowberry	67	5	Empetrum nigrum
	northern Labrador tea	49	3	Ledum palustre
herb (2.3)	northern bastard toadflax	40	1	Geocaulon lividum
moss & lichen	Schreber's moss	93	17	Pleurozium schreberi
(33.4)	stair-step moss	63	8	Hylocomium splendens
	Dicranum moss	42	0.6	Dicranum spp.
	other mosses	100	9	-
	cup and spike lichens	98	3	Cladonia spp.
	green reindeer lichen	96	5	Cladina mitis
	gray reindeer lichen	89	6	Cladina rangiferina
	northern reindeer lichen	88	2	Cladina stellaris
	other lichens	42	17	

TS4 Black spruce/lingonberry/feathermoss: Moderately dry silty sand

Layer (Richness)	Common name	% constancy	% cover	Latin name
ground cover	woody debris	89	5	
	leaf litter	79	6	-
	needle litter	77	2	-
	rock	67	7	-

Ecozonal Synonyms

Taiga Shield	Boreal Shield	Boreal Plain	Prairie	
-	BS9 + BS10	BP14	NA	

Soil Profile

Horizon

Start	
depth	
9	
0	Ae ₆ Ah ₁
	Bm ₇ Bf ₁
19	
	BC ₂
30	^
32	C ₆
02	
40	
50	
60	R_5
70	
70	

Site Features

Soil Great Group - Order	Dystric Brunisol ⁷ Regosol ₁ Nonsoil ₁
Parent Material	Morainal: Fluvial: Lacustrine: Bedrock:
Moisture Regime	Moderately Dry ₄ Moderately Fresh ₃ Dry ₂ Fresh ₁ Very Moist ₁
Drainage	Very Rapid₁ Rapid₄ Well₁ Imperfect₁
Slope	(15-30) ₂ (2-5) ₂ (0-0.5) ₂ (9-15) ₁ (5-9) ₁ (0.5-2) ₁
Topographic Position	Crest ₂ Upper Slope ₂ Mid-Slope ₂ Lower Slope ₂ Level ₁
Aspect	North ₃ East ₂ South ₂ West ₂

TS4 Black spruce/lingonberry/feathermoss: Moderately dry silty sand

Site Features

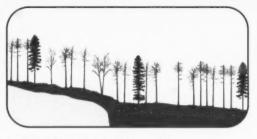
Aspect	No Aspect2
Surface Texture	Sand ₃
	Loamy Sand ₂
	Silty Sand ₂
	Sandy Loam
	Silty Loam
Effective Texture	Silty Sand ₃
	Loamy Sand ₂
	Sand ₁
	Sandy Loam
	Silty Loam
	Rock ₁

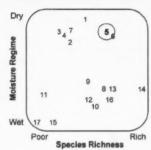
Forest Productivity

rorest Productivity	Tree Species				
	bS	jР	tA	wB	
Site Index (m at 50 years)	5.1 ± 0.6	7.5 ± 3.5	-	5.8 ± 1.9	
Volume (m³/ha)	14.6 ± 5.7	16.9 ± 17.7	$4.8 \pm x$	2.5 ± 5.9	
MAI (m³/ha/yr)	0.20 ± 0.08	0.25 ± 0.38	$0.05 \pm x$	$0.13 \pm x$	
Basal Area (m²/ha)	8.7 ± 1.6	5.2 ± 3.7	$2.4 \pm x$	1.5 ± 1.1	
Age (years)	126 ± 9	89 ± 26	-	73 ± 18	
Height (m)	7.3 ± 0.4	8.8 ± 2.2	$6.9 \pm x$	5.8 ± 3.6	
D.B.H. (cm)	10.2 ± 0.5	14.5 ± 6.2	$12.0 \pm x$	10.7 ± 4.1	
Density (stems/ha)	1057 ± 198	560 ± 672	$200 \pm x$	163 ± 89	

Ecological Interpretation

This ecosite can be found across all topographic positions and all slopes and aspect classes. Despite being relatively dry, the soils have enough silts and clays to sustain the development of feathermosses as well as small-statured black spruce reproducing as seedlings or by layering. Following fire, these sites will usually return to being black spruce dominated because of the seed released from the semi-serotinous black spruce cones by the heat of the fire, the shallow duff layer, presence of relatively fine-textured sands, and adequate moisture regime that combine to create good seed beds for black spruce regeneration. The relatively old average age of trees on these sites may indicate a comparatively long average fire interval (*i.e.*, time between consecutive fires on the same site).





Ecosite Description (n = 5)

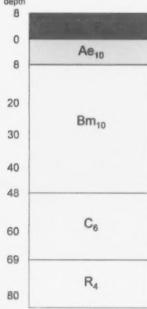
TS5 ecosites are aspen dominated and vary from pure hardwood to a hardwood dominated mixedwood condition. The conifer component of the mixedwoods is usually white spruce, but may also be jack pine. The species richness for shrubs of over 40% constancy is the highest of any upland ecosite in the Taiga Shield ecozone, but the cover values are relatively low. Species richness of herbs with over 40% constancy is second only to TS6. Moss and lichen cover is consistently low and leaf litter is characteristically very high. Woody debris cover tends to be higher on these sites than other Taiga Shield ecosites.

Layer (Richness)	Common name	% constancy	% cover	Latin name
tree (3.2)	trembling aspen	100	66	Populus tremuloides
	white birch	60	14	Betula papyrifera
	white spruce	40	29	Picea glauca
shrub (6.6)	prickly rose	80	8	Rosa acicularis
	trembling aspen	80	2	Populus tremuloides
	lingonberry	80	2	Vaccinium vitis-idaea
	low bush-cranberry	80	0.8	Viburnum edule
	green alder	60	23	Alnus viridis
	bearberry	60	16	Arctostaphylos uva-ursi
	buffaloberry	60	4	Shepherdia canadensis
	white spruce	60	0.6	Picea glauca
	common juniper	40	32	Juniperus communis
	twining honeysuckle	40	0.9	Lonicera dioica
	black spruce	40	0.5	Picea mariana
	Saskatoon	40	0.4	Amelanchier alnifolia
herb (7.0)	fireweed	100	2	Chamerion angustifolium
	twinflower	80	9	Linnaea borealis
	northern bastard toadflax	80	2	Geocaulon lividum
	one-sided wintergreen	80	0.9	Orthilia secunda

Trembling aspen/prickly rose - twinflower: Moderately dry sand

Layer (Richness)	Common name	% constancy	% cover	Latin name
herb (7.0)	common pink wintergreen	60	2	Pyrola asarifolia
	grasses	60	0.3	Graminoid spp.
	bunchberry -	40	9	Cornus canadensis
	wild sarsaparilla	40	0.9	Aralia nudicaulis
	wild strawberry	40	0.4	Fragaria virginiana
moss & lichen	Schreber's moss	100	0.6	Pleurozium schreberi
(24.0)	stair-step moss	60	0.6	Hylocomium splendens
	Dicranum moss	60 ,	0.3	Dicranum spp.
	other mosses	100	2	
	cup and spike lichens	80	0.9	Cladonia spp.
	green reindeer lichen	40	1	Cladina mitis
	gray reindeer lichen	40	0.4	Cladina rangiferina
ground cover	leaf litter	100	80	
	woody debris	100	10	*
	needle litter	80	9	
	rock	40	0.9	
Soil Profile	S	ite Features		

Horizon start depth



Soil Great Group - Order Parent Material

Moisture Regime Drainage

Slope

Topographic Position

Aspect

Surface Texture

Dystric Brunisol₁₀

Morainal₆ Fluvial₂ Glaciofluvial₂

Moderately Dry Fresh₄ Well

Very Rapida Rapid₂ $(5-9)_4$ $(15-30)_2$

(9-15)2 $(0-0.5)_2$

Upper Slope Mid-Slope: Lower Slope2 Level

South₆ East No Aspect: Sanda

Loamy Sand: Silty Sand:

TS5 Trembling aspen/prickly rose - twinflower: Moderately dry sand

Site Features

Surface Texture Silty Loam₂

Effective Texture Sand₄

Loamy Sand₂

Silty Sand₂

Silty Loam₂

Ecozonal Synonyms

Taiga Shield	Boreal Shield	Boreal Plain	Prairie	
-	BS15	BP6 + BP7 + BP10	NA	

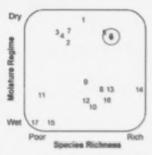
Forest Productivity

,					
	bP	jP	tA	wB	wS
Site Index (m at 50 years)	$18.3 \pm x$	$12.8 \pm x$	12.0 ± 6.0		12.1 ± 28.0
Volume (m³/ha)	$3.1 \pm x$	$31.4 \pm x$	96.1 ± 118.9	$17.2 \pm x$	50.8 ± 598.8
MAI (m³/yr/ha)	$0.04 \pm x$	$0.48 \pm x$	1.25 ± 1.47	$0.18 \pm x$	0.53 ± 6.23
Basal Area	$x \pm 80$.	$8.5 \pm x$	17.5 ± 15.1	$3.3 \pm x$	8.2 ± 55.9
Age (years)	43 ± 64	45 ± 25	78 ± 29		84 ± 37
Height (m)	$13.5 \pm x$	$10.1 \pm x$	12.3 ± 4.1	$14.4 \pm x$	14.5 ± 88.1
D.B.H. (cm)	$9.8 \pm x$	10.9 ± x	13.1 ± 4.7	$10.0 \pm x$	24.8 ± 192.6
Density (stems/ha)	100 ± x	$900 \pm x$	1140 ± 559	$400 \pm x$	300 ± 2541

Ecological Interpretation

These ecosites resemble aspen ecosites of more southerly ecozones, but with less diverse vegetation and a drier soil condition. The soil textures and moisture regimes associated with these sites, and the typically southern and eastern aspects, are responsible for the micro-climates that make possible the growth of aspen and the associated species of herbs and shrubs. The most remarkable feature of this ecosite is the constancy of the vegetation assemblage that accompanies the growth of aspen, despite the great physical distances separating examples of this ecosite type on the Taiga Shield. The southerly aspect, relatively open canopy, and low vascular plant cover allow soils to warm and suckering aspen can be found on these sites. For these same reasons, it is expected that, post-fire, these sites will return to being aspen dominated. These ecosites are very uncommon on the Taiga Shield, covering only a miniscule proportion of the upland area of the ecozone.





Ecosite Description (n = 10)

TS6 ecosites are dominated by white spruce about half of the time. Other tree canopy permutations may include variable amounts of black spruce and jack pine, but always in combination with small amounts of either trembling aspen or even balsam poplar. These are productive ecosites with relatively high site indices and the highest standing volumes and mean annual increment of any upland Taiga Shield ecosite. Green alder and prickly rose are the dominant shrubs and cover values for other shrubs are relatively low. The species richness for herbs with over 40% constancy is the highest of any upland ecosite in the Taiga Shield ecozone and richness of shrubs is second only to TS5. Cover of feathermosses and reindeer lichen is generally high on these sites.

Characi	teristic	Species
CONTRACT SEC.	The second	Cherry.

Layer (Richness)	Common name	% constancy	% cover	Latin name
tree (3.3)	white birch	80	23	Betula papyrifera
	white spruce	70	30	Picea glauca
	black spruce	40	31	Picea mariana
	trembling aspen	40	12	Populus tremuloides
shrub (5.7)	green alder	70	18	Alnus viridis
	prickly rose	70	5	Rosa acicularis
	lingonberry	60	3	Vaccinium vitis-idaea
	black spruce	50	3	Picea mariana
	low bush-cranberry	50	4	Viburnum edule
	white birch	50	0.4	Betula papyrifera
	willows	40	25	Salix spp.
	white spruce	50	2	Picea glauca
	bearberry	40	2	Arctostaphylos uva-ursi
herb (8.8)	bunchberry	70	4	Cornus canadensis
	twinflower	60	4	Linnaca borealis
	fireweed	60	2	Chamerion angustifolium
	northern bastard toadflax	60	2	Geocaulon lividum
	common pink wintergreen	50	0.9	Pyrola asarifolia
	grasses	50	0.6	Graminoid spp.

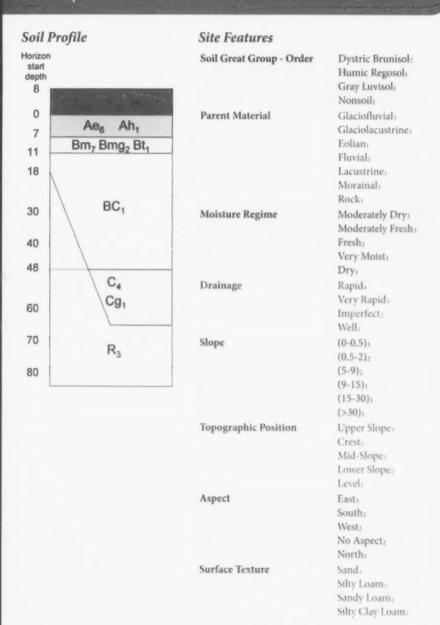
TS6 White birch - spruce/green alder: Moderately fresh sand

Layer (Richness)	Common name	% constancy	% cover	Latin name
herb (8.8)	one-sided wintergreen	50	0.8	Orthilia secunda
	sedges	40	8	Carex spp.
	wild strawberry	40	0.6	Fragaria virginiana
	dewberry	40	0.4	Rubus pubescens
	common yarrow	40	0.4	Achillea millefolium
moss & lichen	Schreber's moss	80	17	Pleurozium schreberi
(26.1)	stair-step moss	70	9	Hylocomium splenden
	Dicranum moss	70	1	Dicranum spp.
	hair-cap moss	50	0.8	Polytrichum spp.
	other mosses	100	2	-
	cup and spike lichens	90	10	Cladonia spp.
	green reindeer lichen	60	4	Cladina mitis
	gray reindeer lichen	40	6	Cladina rangiferina
	northern reindeer lichen	40	0.3	Cladina stellaris
ground cover	leaf litter	100	45	
	woody debris	100	8	
	needle litter	80	8	-
	rock	50	22	

Ecozonal Synonyms

Taiga Shield	Boreal Shield	Boreal Plain	Prairie
-	BS12 + BS13	BP9	NA

TS6 White birch - spruce/green alder: Moderately fresh sand



TS6 White birch - spruce/green alder: Moderately fresh sand

Site Features

Effective Texture Sanda Silty Loam2 Sandy Loam1 Clay1

Rocki

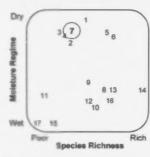
Forest Productivity

icirrity		Tree Species			
bP	bS	jP	tA	wB	wS
9.4 ±	10.9 ±	9.8 ±	11.6 ±	$9.5 \pm x$	9.8 ±
21.3	9.8	18.4	10.4		2.6
20.1 ±	25.0 ±	24.9 ±	90.6 ±	19.7 ±	83.3 ±
255.7	49.5	30.4	343.7	19.5	100.2
$0.48 \pm x$	0.29 ±	0.36 ±	1.59 ±	0.25 ±	1.00 ±
	0.63	1.51	6.29	0.24	1.35
6.2 ±	6.7 ±	5.8 ±	17.5 ±	4.9 ±	15.9 ±
72.7	11.4	20.7	65.3	4.0	17.5
59 ± 43	87 ± 11	74 ± 123	57 ± 11	87 ± 57	89 ± 21
9.5 ± 16.5	9.8 ± 0.8	12.4 ± 40.3	12.9 ± 4.3	11.3 ± 1.1	10.4 ± 2.9
9.8 ± 27.6	10.8 ±	13.5 ±	24.7 ±	12.9 ±	13.1 ±
	3.7	35.3	44.8	2.5	4.8
550 ±	567 ±	500 ±	167 ±	283 ±	933 ±
5718	574	3812	143	181	950
	bP 9.4 ± 21.3 20.1 ± 255.7 0.48 ± x 6.2 ± 72.7 59 ± 43 9.5 ± 16.5 9.8 ± 27.6	bP bS 9.4 ± 10.9 ± 21.3 9.8 20.1 ± 25.0 ± 255.7 49.5 0.48 ± x 0.29 ± 0.63 6.2 ± 6.7 ± 72.7 11.4 59 ± 43 87 ± 11 9.5 ± 16.5 9.8 ± 0.8 9.8 ± 27.6 10.8 ± 3.7 550 ± 567 ±	Tree S bP bS jP 9.4 ± 10.9 ± 9.8 ± 21.3 9.8 18.4 20.1 ± 25.0 ± 24.9 ± 255.7 49.5 30.4 0.48 ± x 0.29 ± 0.36 ± 0.63 1.51 6.2 ± 6.7 ± 5.8 ± 72.7 11.4 20.7 59 ± 43 87 ± 11 74 ± 123 9.5 ± 16.5 9.8 ± 0.8 12.4 ± 40.3 9.8 ± 27.6 10.8 ± 13.5 ± 3.7 35.3 550 ± 567 ± 500 ±	$\begin{array}{c ccccccccccccccccccccccccccccccccccc$	$\begin{array}{c ccccccccccccccccccccccccccccccccccc$

Ecological Interpretation

These ecosites have the greatest range of overstory species combinations of all Taiga Shield ecosites. The specific soil and other site conditions, capable of producing an ecosystem able to support white spruce, trembling aspen and balsam poplar, occur only very rarely in this ecozone. Consequently, these are among the least common sites of the Taiga Shield, covering only a very small proportion of the upland area of the ecozone.





Ecosite Description (n = 10)

TS7 ecosites are typically occupied by a black spruce and white birch canopy (with spruce leading) although occasionally jack pine may be substituted for the black spruce. Most of the shrub cover on these sites is ericaceous, accounting for about one-third of the understory vegetative cover. Herb and moss cover is generally low. The lichen community may be more prominent on some examples of this ecosite and is then likely to be dominated by woolly coral lichen. These sites are very similar to the TS3 ecosite. TS7 ecosites are distinguished from TS3 ecosites by having a higher proportion of black spruce, higher incidence of northern Labrador tea, crowberry, and northern bastard toad flax, higher proportions of feathermoss, and as would be expected, relatively less leaf litter and more needle litter on the ground.

Layer (Richness)	Common name	% constancy	% cover	Latin name
tree (2.3)	black spruce	100	15	Picea mariana
	white birch	100	15	Betula papyrifera
shrub (4.3)	lingonberry	100	18	Vaccinium vitis-idaea
	Labrador tea	70	9	Ledum groenlandicum
	black spruce	70	5	Picea mariana
	bearberry	60	4	Arctostaphylos uva-ursi
	crowberry	50	4	Empetrum nigrum
	white birch	40	2	Betula papyrifera
	willows	40	1	Salix spp.
	northern Labrador tea	40	0.9	Ledum palustre
herb (3.2)	northern bastard toadflax	70	1	Geocaulon lividum
	grasses	40	0.3	Graminoid spp.
moss & lichen	Schreber's moss	80	3	Pleurozium schreberi
(34.9)	stair-step moss	60	8	Hylocomium splendens
	hair-cap moss	50	5	Polytrichum spp.
	Dicranum moss	40	0.5	Dicranum spp.
	other mosses	100	3	
	cup and spike lichens	100	1	Cladonia spp.
	green reindeer lichen	90	5	Cladina mitis

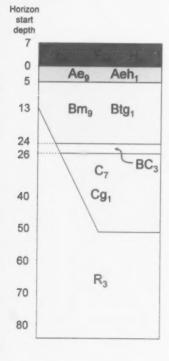
TS7 White birch - black spruce/lingonberry: Moderately dry loamy sand

Layer (Richness)	Common name	% constancy	% cover	Latin name
moss & lichen	gray reindeer lichen	70	4	Cladina rangiferina
(34.9)	northern reindeer lichen	60	0.4	Cladina stellaris
	other lichens	50	15	-
ground cover	woody debris	90	6	
	leaf litter	80	29	
	needle litter	60	6	
	rock	60	10	

Ecozonal Synonyms

Taiga Shield	Boreal Shield	Borcal Plain	Prairie
-	BS9 + BS10	BP14	NA

Soil Profile



Site Features

Soil Great Group - Order	D
Son Great Group - Order	Dystric Brunisols Luvic Gleysol
	Nonsoil.
Parent Material	Morainal:
ratem material	Fluvial
	Rock
Moietura Dagima	
Moisture Regime	Moderately Dry6
	Moderately Fresh ₂
	Dry ₁ Very Moist ₁
D	
Drainage	Rapids
	Very Rapid ₃
	Well ₁
	Very Poor
Slope	(0-0.5)4
	$(15-30)_3$
	(2-5)2
	(>30)1
Topographic Position	Crest ₄
	Mid-Slope ₂
	Lower Slope ₂
	Upper Slope:
	Level
Aspect	East ₃
	No Aspecta
	South ₂
	West ₂

TS7 White birch - black spruce/lingonberry: Moderately dry loamy sand

Site Features

Aspect North2

Surface Texture Loamy Sand3
Sand3
Sandy Loam2

Effective Texture Sand3
Loamy Sand3
Silty Sand3
Sandy Loam2

Forest Productivity

		Tree Species	
	bS	jР	wB
Site Index (m at 50 years)	7.8 ± 2.6	$11.3 \pm x$	7.9 ± 2.4
Volume (m³/ha)	12.4 ± 22.1	$35.4 \pm x$	23.0 ± 52.3
MAI (m³/ha/yr)	0.22 ± 0.40	$0.56 \pm x$	$1.15 \pm x$
Basal Area (m²/ha)	4.4 ± 4.2	9.5 ± x	5.2 ± 8.8
Age (years)	91 ± 18	62 ± 6	71 ± 29
Height (m)	7.1 ± 1.6	9.9 ± x	8.7 ± 3.4
D.B.H. (cm)	10.4 ± 1.6	$11.4 \pm x$	11.5 ± 4.2
Density (stems/ha)	400 ± 261	$900 \pm x$	414 ± 313

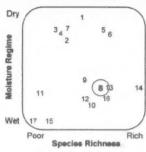
Sandy Clay Loam

Ecological Interpretation

TS3 and TS7 may be temporally- and successionally-related ecosites. In the absence of disturbance, TS3 ecosites can transition to TS7 ecosites, as the stands open up with the death of white birch and the black spruce reproducing by layering. A stand-replacing crown fire will tend to convert TS7 stands back to TS3 stands if white birch is present as it will reproduce vigorously after fire by root-collar sprouting at the base of the trunks and from seed. Another indicator of the close relationship between these two ecosites is their similarity in parent material and soil texture. The high frequency and large size of extensive forest fires in the Taiga Shield limits the succession of TS3 to TS7 and consequently also limits the spatial extent of this ecosite. The generally open condition of these sites, consistent presence of shrubby black spruce, and loamy sand surface soil conditions suggest that layering of black spruce is a substantial source of regeneration, in the absence of fire.







Ecosite Description (n = 2)

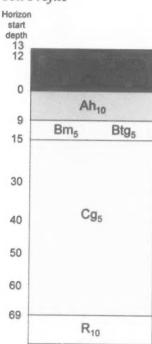
TS8 are wetland ecosites, typically occupied by a white birch canopy. They have a tall shrub layer of river alder and some willow. Both the alder and willow can be large (up to 10 and 8 m respectively). Due to the high alder and tree canopy cover, herb cover is low but the moist, rich conditions support the occurrence of a relatively high diversity of herbaceous species. Similarly, the heavy fall of leaf litter largely precludes cryptogams. These sites are productive because of abundant moisture and rich fluvial soils but the cyclical occurrence of seasonal flooding probably causes the surprisingly low cap on site index.

Layer (Richness)	Common name	% constancy	% cover	Latin name
tree (2.0)	white birch	100	39	Betula papyrifera
	black spruce	100	3	Picea mariana
shrub (5.5)	river alder	100	40	Alnus incana
	low bush-cranberry	100	2	Viburnum edule
	black spruce	100	2	Picea mariana
	white birch	100	0.6	Betula papyrifera
	lingonberry	100	0.5	Vaccinium vitis-idaea
	red currant	100	0.4	Ribes triste
	Labrador tea	50	24	Ledum groenlandicum
	pussy willow	50	4	Salix discolor
	willows	100	3	Salix spp.
herb (9.0)	two-seeded sedge	100	0.4	Carex disperma
	cloudberry	100	0.4	Rubus chamaemorus
	marsh violet	100	0.4	Viola palustris
	woodland horsetail	100	0.3	Equisetum sylvaticum
	bunchberry	50	2	Cornus canadensis
	sedges	50	1	Carex spp.
	dwarf scouring rush	50	0.5	Equisetum scirpoides
	three-leaved false	50	0.5	Similacina trifolia
	Solomon's-seal			
	pale coralroot	50	0.5	Corallorhiza trifida
	marsh cinquefoil	50	0.5	Comarum palustre

TS8 White birch/river alder/feathermoss: Very moist clay loam

Layer (Richness)	Common name	% constancy	% cover	Latin name
herb (9.0)	one-sided wintergreen	50	0.3	Orthilia secunda
	grasses	50	0.3	Graminoid spp.
	Lapland buttercup	50	0.1	Ranunculus lapponicus
moss & lichen	stair-step moss	100	10	Hylocomium splendens
(23.5)	Sphagnum moss	100	0.4	Sphagnum spp.
	fragile cushion moss	50	0.5	Dicranum fragilifolium
	slender hair-cap moss	50	0.5	Polytrichum strictum
	other mosses	100	2	*
	cup and spike lichens	100	0.3	Cladonia spp.
	other lichens	50	0.3	*
ground cover	leaf litter	100	81	*
	woody debris	100	4	
	rock	50	1	-
	needle litter	50	0.3	

Soil Profile



Site Features

Soil Great Group - Order	Gleysol ₁₀
Parent Material	Fluvial ₁₀
Moisture Regime	Very Moist ₁₀
Drainage	Imperfects
	Very Poors
Slope	(0.5-2)5
	(2-5)5
Topographic Position	Toe Slopes
	Depression ₅
Aspect	Easts
	Norths
Surface Texture	Loamy Sands
	Clay Loams
Effective Texture	Organic Humics
	Clay Loams

Ecozonal Synonyms

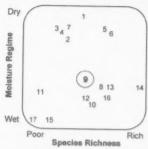
Taiga Shield	Boreal Shield	Boreal Plain	Prairie
-	BS16	NA	NA

Forest Productivity	Tree Species		
	bS	wB	
Site Index (m at 50 years)	8.3 ± 11.8	9.1 ± 32.1	
Volume (m³/ha)	7.3 ± 56.8	51.2 ± 17.9	
MAI (m³/ha/yr)	0.07 ± 0.32	0.57 ± 2.07	
Basal Area (m²/ha)	1.8 ± 12.8	13.8 ± 46.8	
Age (years)	110 ± 17	98 ± 63	
Height (m)	9.9 ± 8.9	10.7 ± 13.9	
D.B.H. (cm)	11.9 ± 19.7	14.0 ± 5.3	
Density (stems/ha)	150 ± 635	800 ± 3812	

Ecological Interpretation

This wetland ecosite is uncommon on the Taiga Shield due to the rarity of the combination of flowing water, good drainage, and mineral parent material. This ecosite is associated with seasonal fluctuations in the water table which allows for the good growth of the birch, alder and willow. They are always located beside ephemeral or seasonally variable stream courses. The soil conditions may have humic layers interspersed with buried mineral horizons of fine-textured fluvial material. The combination of abundant moisture and rich soils produces conditions supporting a herbaceous layer of sparse cover but high species diversity.





Ecosite Description (n = 23)

TS9 ecosites are dominated by black spruce both in tree form and as a shrub. Tamarack is occasionally present. A rich diversity of ericaceous shrubs is common on these sites with Labrador tea being the most abundant. Small bog cranberry and northern Labrador tea are also frequently encountered. Sphagnum mosses typically cover most of the soil surface but feathermosses and reindeer lichens are also commonly encountered. Cloudberry is the only herb that is a constant on these sites but a relatively rich diversity of other herb species can be observed with very low cover values. These sites usually occur on frozen organic soils (permafrost), but can also be found in lower and toe slope positions that may have moist to wet mineral soils. Both site index and tree productivity are low due to the cold and frequently flooded organic soils.

Layer (Richness)	Common name	% constancy	% cover	Latin name
tree (1.9)	black spruce	100	20	Picea mariana
shrub (7.1)	black spruce	100	8	Picea mariana
	lingonberry	100	6	Vaccinium vitis-idaea
	Labrador tea	96	13	Ledum groenlandicum
	small bog cranberry	87	0.7	Vaccinium oxycoccos
	northern Labrador tea	70	4	Ledum palustre
	crowberry	57	5	Empetrum nigrum
	leatherleaf	52	6	Chamaedaphne calyculata
	northern bog-laurel	52	0.5	Kalmia polifolia
	bog bilberry	43	3	Vaccinium uliginosum
	tamarack	43	0.9	Larix laricina
	willows	39	2	Salix spp.
	dwarf bog-rosemary	39	0.6	Andromeda polifolia
herb (4.0)	cloudberry	87	5	Rubus chamaemorus
moss & lichen	Sphagnum moss	100	38	Sphagnum spp.
(33.8)	Schreber's moss	91	13	Pleurozium schreberi
	Dicranum moss	70	0.5	Dicranum spp.
	stair-step moss	52	5	Hylocomium splendens
	other mosses	100	4	

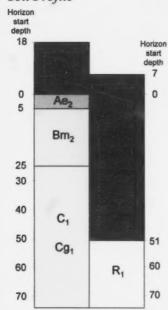
Black spruce treed bog: Moderately wet mesic organic

Layer (Richness)	Common name	% constancy	% cover	Latin name
moss & lichen	cup and spike lichens	96	2	Cladonia spp.
(33.8)	green reindeer lichen	100	4	Cladina mitis
	grey reindeer lichen	91	7	Cladina rangiferina
	northern reindeer lichen	74	2	Cladina stellaris
ground cover	woody debris	91	5	
	leaf litter	78	3	
	needle litter	74	0.7	

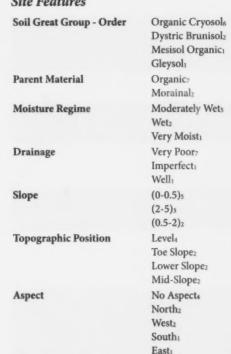
Ecozonal Synonyms

Taiga Shield	Boreal Shield	Boreal Plain	Prairie
-	BS17	BP19	NA

Soil Profile



Site Features



TS9 Black spruce treed bog: Moderately wet mesic organic

Site Features

Surface Texture	Organic Fibrica
	Sandı
	Loamy Sandi
	Sandy Loam ₁
	Silty Loam
	Silty Clayı
Effective Texture	Organic Mesic ₆
	Organic Fibrica
	Organic Humic

Forest Productivity

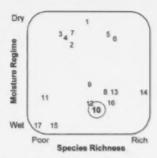
	Tree Species		
	bS	tL	
Site Index (m at 50 years)	4.4 ± 0.8	7.1 ± 10.0	
Volume (m³/ha)	7.9 ± 7.4	3.4 ± 9.5	
MAI (m³/ha/yr)	0.18 ± 0.16	0.08 ± 0.57	
Basal Area (m²/ha)	4.7 ± 2.1	2.1 ± 2.8	
Age (years)	126 ± 15	103 ± 82	
Height (m)	6.9 ± 0.8	7.9 ± 4.3	
D.B.H. (cm)	9.8 ± 0.7	9.8 ± 1.0	
Density (stems/ha)	582 ± 244	300 ± 430	

Ecological Interpretation

Treed bogs are commonly encountered on the Taiga Shield. They usually occur along the fringe or transition from the upland to wetter, more open bogs or fens. They are also often associated with extensive permafrost landforms known as peat plateaus. Treed bogs in the Taiga Shield are differentiated from those in the southern ecozones by the presence of northern Labrador tea and bog bilberry. The trees found on these ecosites are usually all-aged as the *Sphagnum* moss on the site encourages layering of spruce and stand-replacing fires are relatively infrequent. *Sphagnum* is also a suitable seedbed for spruce germination, provided that the moss isn't Girgensohn's or another fast-growing peat moss (which can outcompete and smother black spruce germinants). Despite the wet conditions, black spruce on these sites can remain free from rot for long periods and trees can reach ages in excess of 240 years. In the absence of disturbances these ecosites will likely remain in their current condition. Following disturbance by fire or flood, they may return to TS9 or may come to more closely resemble TS10 or TS12 if post-disturbance tree regeneration is very low or absent.

TS10 Labrador tea shrubby bog: Very wet humic organic





Ecosite Description (n = 10)

TS10 ecosites are dominated by a variety of ericaceous shrubs, notably Labrador tea, lingonberry, small bog cranberry and, less often, leatherleaf. Both black spruce and tamarack may occur in tree form (i.e., < 2 m), but their cover is usually low (i.e., < 10%). Aside from the expected absence of trees, shrubby bogs tend to have a higher cover of *Sphagnum* moss, and a lower proportion of feathermoss, than treed bogs. Reindeer lichens and the cup and spike lichens are common on the dry tops of *Sphagnum* hummocks. Shrubby bogs are also more closely associated with wet to very wet organic soils and a micro-topography characterized by small water-filled depressions among the *Sphagnum* hummocks.

Layer (Richness)	Common name	% constancy	% cover	Latin name
tree (1.8)	black spruce	70	5	Picea mariana
	tamarack	40	3	Larix laricina
shrub (7.6)	Labrador tea	100	13	Ledum groenlandicum
	northern bog-laurel	100	2	Kalmia polifolia
	black spruce	90	9	Picea mariana
	small bog cranberry	90	2	Vaccinium oxycoccos
	lingonberry	80	3	Vaccinium vitis-idaea
	northern Labrador tea	80	1	Ledum palustre
	bog bilberry	60	3	Vaccinium uliginosum
	tamarack	60	0.8	Larix laricina
	dwarf bog-rosemary	50	2	Andromeda polifolia
	leatherleaf	40	24	Chamaedaphne calyculata
	crowberry	40	4	Empetrum nigrum
herb (4.8)	cloudberry	100	2	Rubus chamaemorus
	sedges	60	2	Carex spp.
	round-leaved sundew	40	0.5	Drose tundifolia
	hairy butterwort	40	0.3	Pinguic - a villosa
moss & lichen	Sphagnum moss	100	43	Sphagnum spp.
(21.5)	wavy dicranum	60	0.5	Dicranum undulatum
	Schreber's moss	50	0.7	Pleurozium schreberi

TS10 Labrador tea shrubby bog: Very wet humic organic

Layer (Richness)	Common name	% constancy	% cover	Latin name
moss & lichen	slender hair-cap moss	50	0.5	Polytrichum strictum
(21.5)	other mosses	100	1	-
	green reindeer lichen	90	7	Cladina mitis
	cup and spike lichens	80	2	Cladonia spp.
	grey reindeer lichen	70	7	Cladina rangiferina
	northern reindeer lichen	60	0.5	Cladina stellaris
	other lichens	50	0.4	
ground cover	leaf litter	100	11	
	woody debris	100	2	
	needle litter	50	0.9	

Ecozonal Synonyms

Taiga Shield	Boreal Shield	Boreal Plain	Prairie
	BS18	BP20	NA

20

30

34

39

50

60

70

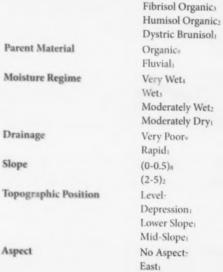
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Soil Profile

Horizon start depth 21 Horizon atart depth 6 0 Aeh₁ 10

Site Features





North:

Organic Cryosol₄

20

30

40

52

60

70

C,

TS10 Labrador tea shrubby bog: Very wet humic organic

Site Features

Surface Texture

Organic Fibrics
Sandt
Loamt

Effective Texture

Organic Humics
Organic Fibrica
Sandt

Forest Productivity

rorest Froductivity	Tree Species bS
Site Index (m at 50 years)	3.7 ± 0.8
Volume (m³/ha)	
MAI (m³/ha/yr)	-
Basal Area (m²/ha)	1.1 ± 1.8
Age (years)	138 ± 22
Height (m)	6.8 ± 2.9
D.B.H. (cm)	9.1 ± 2.8
Density (stems/ha)	167 ± 287

Ecological Interpretation

Shrubby bogs are common on the Taiga Shield. Being wetter than treed bogs, they tend to be associated with Fibrisol and Humisol organic soils although organic Cryosols are also common and these ecosites are often found on the extensive landform type known as peat plateus. As with the other forms of bogs, most of the moisture they receive comes from precipitation, not ground water. With little influence from groundwater, they are nutrient poor (*i.e.*, ombrotrophic). This scarcity of nutrients gives rise to conditions which promote the growth of carnivorous plants (*e.g.*, sundew, butterwort) that are able to meet their nutritional needs by catching insects and digesting their proteins to obtain nitrogen. Shrubby bogs occur on sites characterized by even flatter terrain than those supporting treed bogs. Since the water table associated with shrubby bogs is usually below the site surface, they are still susceptible to disturbance from fire. Fires with a long enough duration or intensity may kill shrub species and the bog may transition into an open (TS12) or graminoid dominated (TS11) condition. In a minority of these sites, past successional fluctuations in water table are manifest as buried alluvium horizons which can create an organic Cumulic Humisol soil profile. Buried alluvium layers indicate shifts in environmental conditions (*e.g.*, moisture regimes, hydrology) have occurred sometime in the past.



TS11 Graminoid bog: Moderately wet fibric organic



Ecosite Description (n = 2)

TS11 ecosites are dominated by sedges and other graminoids in association with *Sphagnum* moss. They typically lack any substantial tree or shrub cover and can occur on mineral or organic substrates. While not listed as a characteristic species, these are sites in which cotton grasses are sometimes encountered.

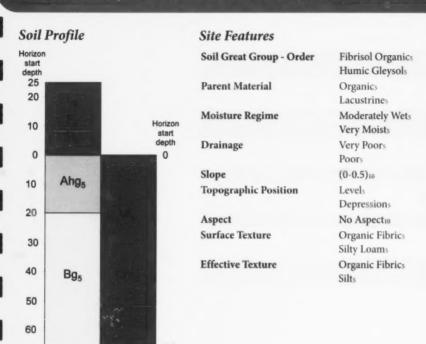
Characteristic Species

Layer (Richness)	Common name	% constancy	% cover	Latin name
tree (0.0)				
shrub (2.0)	willows	50	10	Salix spp.
	leatherleaf	50	5	Chamaedaphne calyculata
	northern bog-laurel	50	1	Kalmia polifolia
	small bog cranberry	50	0.5	Vaccinium oxycoccos
herb (3.0)	grasses	50	88	Graminoid spp.
	water sedge	50	50	Carex aquatilis
	cattail	50	1	Typha latifolia
	sedges	50	0.5	Carex spp.
	round-leaved sundew	50	0.5	Drosera rotundifolia
	woodland horsetail	50	0.1	Equisetum sylvaticum
moss & lichen	Sphagnum moss	50	75	Sphagnum spp.
(2.5)	other mosses	50	63	
ground cover	leaf litter	50	3	

Ecozonal Synonyms

Taiga Shield	Boreal Shield	Boreal Plain	Prairie
	BS19	BP21	NA

TS11 Graminoid bog: Moderately wet fibric organic



Forest Productivity

none

Ecological Interpretation

Graminoid bogs are infrequently encountered (as indicated by the low sample size). While similar to sedge fens they lack fen species and standing water is not readily seen. Following disturbance by either fire or prolonged flooding, these sites will typically return to being a graminoid bog. However, they may revert to an open bog condition until the grasses become re-established. These ecosites may become more common as climate change-induced permafrost melting becomes more extensive in the north and peat plateaus give way to collapse scars and thermokarst ponds.



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Ecosite Description (n = 1)

TS12 ecosites are dominated by Sphagnum moss with low cover of trees (<10%), shrubs (<20%), and herbs (<20%). They are typically associated with organic soils. The typical organic texture for these sites is mesic organic but the presence of permafrost may cause the soils of these sites to be classed as Organic Cryosols.

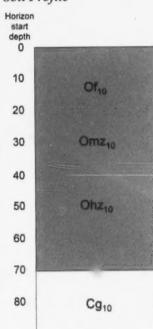
Layer (Richness)	Common name	% constancy	% cover	Latin name
tree (2.0)	black spruce	100	2	Picea mariana
shrub (7.0)	Labrador tea	100	10	Ledum groenlandicum
	black spruce	100	3	Picea mariana
	leatherleaf	100	2	Chamaedaphne calyculata
	lingonberry	100	2	Vaccinium vitis-idaea
	northern bog-laurel	100	0.5	Kalmia polifolia
	small bog cranberry	100	0.5	Vaccinium oxycoccos
	northern Labrador tea	100	0.3	Ledum palustre
herb (4.0)	cloudberry	100	6	Rubus chamaemorus
	sedges	100	0.5	Carex spp.
	woodland horsetail	100	0.3	Equisetum sylvaticum
moss & lichen	Sphagnum moss	100	88	Sphagnum spp.
(13.0)	Schreber's moss	100	1	Pleurozium schreberi
	Dicranum moss	100	0.5	Dicranum spp.
	hair-cap moss	100	0.5	Polytrichum spp.
	other mosses	100	0.5	9
	green reindeer lichen	100	10	Cladina mitis
	cup and spike lichens	100	2	Cladonia spp.
	pelt lichens	100	1	Peltigera spp.
ground cover	woody debris	100	3	
	leaf litter	100	3	
	needle litter	100	< 1	

TS12 Open bog: Moderately wet mesic organic

Ecozonal Synonyms

Taiga ShieldBoreal ShieldBoreal PlainPrairieBS20BP22NA

Soil Profile



Site Features

Soil Great Group - Order Organic Cryosolia Parent Material Organic₁₀ Moderately Wet10 Moisture Regime Very Poorm Drainage (0-0.5)10 Slope Levelin **Topographic Position** No Aspectio Aspect **Surface Texture** Organic Fibricio **Effective Texture** Organic Mesicio

Forest Productivity

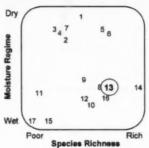
none

Ecological Interpretation

Open *Sphagnum* bogs are infrequently encountered (as indicated by the low sample size) in the Taiga Shield ecozone. They tend to be somewhat wetter than (at least temporarily) and resemble the surrounding ecosite, but lack the abundance of species and structure that is commonly associated with other bog ecosites. They usually occur within treed or shrubby bogs (TS9 & TS10 respectively) which is why they more closely resemble those ecosites rather than graminoid bogs (TS11). The organic soils associated with these sites tend to be Mesic, but the frequently encountered permafrost in the Taiga Shield would cause the soil to be classed as an Organic Cryosol. Where the permafrost has melted, these sites could become a collapse scar. Over time, these ecosites may become a shrubby or treed bog.

TS13 Tamarack treed fen: Very moist fibric organic





Ecosite Description (n = 1)

Tamarack is the predominant tree species on TS13 ecosites, although black spruce may also occur in lesser amounts. Many of the shrub and herb species encountered are more commonly associated with moister conditions. It is not uncommon for treed fens to have a water table at or near the surface unless it is frozen. Treed fen ecosites may occur on organic soils or they may have a mineral soil substrate.

Layer (Richness)	Common name	% constancy	% cover	Latin name
tree (4.0)	tamarack	100	10	Larix laricina
	black spruce	100	3	Picea mariana
	white birch	100	0.5	Betula papyrifera
shrub (11.0)	leatherleaf	100	38	Chamaedaphne calyculata
	bog willow	100	10	Salix pedicellaris
	small bog cranberry	100	5	Vaccinium oxycoccos
	dwarf birch	100	3	Betula pumila
	willows	100	3	Salix spp.
	black spruce	100	3	Picea mariana
	tamarack	100	1	Larix laricina
	northern bog-laurel	100	0.5	Kalmia polifolia
	sweet gale	100	0.5	Myrica gale
	Labrador tea	100	0.3	Ledum groenlandicum
	dwarf bog-rosemary	100	0.3	Andromeda polifolia
herb (5.0)	sedges	100	1	Carex spp.
	common horsetail	100	1	Equisetum arvense
	marsh reed grass	100	0.5	Calamagrostis canadensis
	marsh cinquefoil	100	0.3	Comarum palustre
	swamp horsetail	100	0.1	Equisetum fluviatile
moss & lichen	Sphagnum moss	100	19	Sphagnum spp.
(26.0)	other mosses	100	10	
	Schreber's moss	100	0.5	Pleurozium schreberi
	Dicranum moss	100	0.5	Dicranum spp.
106				Taiga Shield

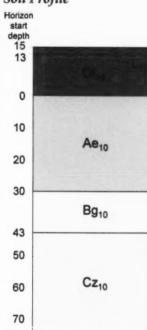
TS13 Tamarack treed fen: Very moist fibric organic

Layer (Richness)	Common name	% constancy	% cover	Latin name
ground cover	leaf litter	100	29	
	woody debris	100	5	-
	needle litter	100	0.3	-

Ecozonal Synonyms

Taiga Shield	Boreal Shield	Boreal Plain	Prairie
	BS21	BP23	NA

Soil Profile



Site Features

Soil Great Group - Order	Static Cryosol ₁₀
Parent Material	Lacustrine10
Moisture Regime	Very Moist ₁₀
Drainage	Very Poor ₁₀
Slope	$(0-0.5)_{10}$
Topographic Position	Level ₁₀
Aspect	No Aspect ₁₀
Surface Texture	Silty clay ₁₀
Effective Texture	Organic Fibrica

Forest Productivity

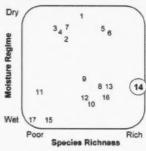
Torest Frounctivity	Tree Species
	tL
Site Index (m at 50 years)	$7.2 \pm x$
Volume (m³/ha)	-
MAI (m³/ha/yr)	*
Basal Area (m²/ha)	$1.3 \pm x$
Age (years)	66 ± 6
Height (m)	$7.6 \pm x$
D.B.H. (cm)	$12.9 \pm x$
Density (stems/ha)	$100 \pm x$

Ecological Interpretation

Tamarack treed fens are not a common wetland (as indicated by the low sample size) in the Taiga Shield. They tend to occur in association with shrubby fens (TS 14) and resemble ribbons in the landscape along drainage ways. Following disturbance, these ecosites could be expected to become a shrubby fen. In the absence of disturbance theses ecosites will likely remain in their current condition.

TS14 Labrador tea shrubby fen: Very moist fibric organic





Ecosite Description (n = 1)

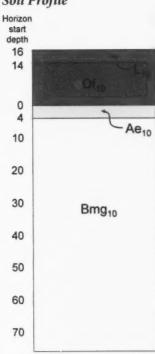
Labrador tea, willow, and leatherleaf are the dominant shrub species on this ecosite. Scattered tamarack or black spruce may also occur. Many of the shrub and herb species encountered are more commonly associated with moister conditions. It is not uncommon for shrubby fens to have a water table at or near the surface unless it is frozen. Shrubby fen ecosites may occur on organic soils or they may have a mineral soil substrate.

Layer (Richness)	Common name	% constancy	% cover	Latin name
tree (2.0)	tamarack	100	3	Larix laricina
	black spruce	100	1	Picea mariana
shrub (9.0)	Labrador tea	100	44	Ledum groenlandicum
	willows	100	20	Salix spp.
	leatherleaf	100	19	Chamaedaphne calyculata
	black spruce	100	10	Picea mariana
	lingonberry	100	5	Vaccinium vitis-idaea
	small bog cranberry	100	5	Vaccinium oxycoccos
	river alder	100	2	Alnus incana
	northern bog-laurel	100	1	Kalmia polifolia
	tamarack	100	0.3	Larix laricina
herb (12.0)	sedges	100	19	Carex spp.
	common horsetail	100	1	Equisetum arvense
	round-leaved sundew	100	0.5	Drosera rotundifolia
	northern grass-of- Parnassus	100	0.5	Parnassia palustris
	hooded ladies'-tresses	100	0.1	Spiranthes romanzoffiana
	swamp lousewort	100	0.1	Pedicularis parviflora
moss & lichen	Sphagnum moss	100	88	Sphagnum spp.
(30.0)	Dicranum moss	100	3	Dicranum spp.
	Schreber's moss	100	0.5	Pleurozium schreberi
	other mosses	100	1	-
	grey reindeer lichen	100	1	Cladina rangiferina
08				Taiga Shiel

TS14 Labrador tea shrubby fen: Very moist fibric organic

Layer (Richness)	Common name	% constancy	% cover	Latin name
moss & lichen	cup and spike lichens	100	0.5	Cladonia spp.
(13.0)	green reindeer lichen	100	0.5	Cladina mitis
ground cover	water	100	10	-
	leaf litter	100	6	-
	woody debris	100	2	
	needle litter	100	2	~

Soil Profile



Ecozonal Synonyms

Taiga Shield	Boreal Shield
	BS22

Во	real Plain	Prairie	
	BP24	NA	

Site Features

Fluvial10
Very Moist ₁₀
Imperfect ₁₀
(0-0.5)10
Levelin
No Aspect ₁₀
Sandio
Organic Fibric ₁₀

Forest Productivity

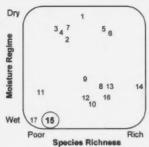
Forest Fronuctivity	Tree Specie tL
Site Index (m at 50 years)	$15.1 \pm x$
Volume (m³/ha)	*
MAI (m³/ha/yr)	*
Basal Area (m²/ha)	$0.6 \pm x$
Age (years)	35 ± 83
Height (m)	$7.7 \pm x$
D.B.H. (cm)	$9.0 \pm x$
Density (stems/ha)	$100 \pm x$

Ecological Interpretation

Shrubby fens are quite uncommon (as indicated by the low sample size) in the Taiga Shield. Where they do occur, it is usually in association with treed fens (TS 13). Depending on type of disturbance (e.g., flooding or fire), these ecosites could return to TS14, provided the regenerative capacity of the shrub layer was maintained. If the shrub layer was lost or otherwise compromised, this site may more closely resemble TS16 or TS15.

TS15 Graminoid fen: Very wet fibric organic





Ecosite Description (n = 5)

Graminoid or sedge fens support various sedge species (e.g., beaked sedge) and sometimes marsh reed grasses. They generally lack trees and shrubs and *Sphagnum* moss is the most common moss. Graminoid fens usually have water at or near the surface and small surface pools which can support bladderwort. While graminoid fen ecosites are usually associated with organic soils, they may also occur with mineral substrates.

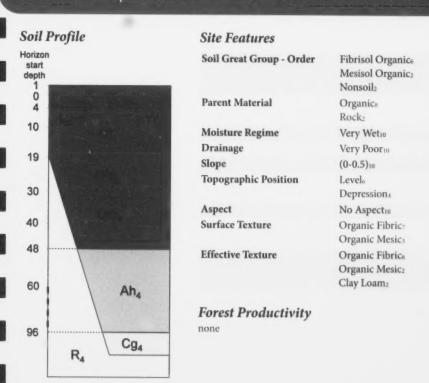
Characteristic Species

Layer (Richness)	Common name	% constancy	% cover	Latin name
tree (0.2)				
shrub (1.6)	leatherleaf	60	4	Chamaedaphne calyculata
	willows	40	0.3	Salix spp.
	sweet gale	40	0.3	Myrica gale
herb (4.4)	hairy-fruited sedge	60	20	Carex lasiocarpa
	beaked sedge	60	8	Carex rostrata
	water sedge	40	18	Carex aquatilis
	northern reed grass	40	6	Calamagrostis inexpansa
	marsh cinquefoil	40	1	Comarum palustre
	flat-leaved bladderwort	100	1	Utricularia intermedia
moss & lichen	Sphagnum moss	60	58	Sphagnum spp.
(5.4)	other mosses	60	10	
ground cover	leaf litter	100	24	
	water	80	23	
	woody debris	40	0.8	

Ecozonal Synonyms

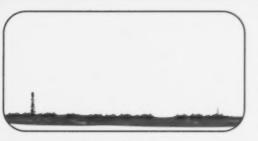
Taiga Shield	Boreal Shield	Boreal Plain	Prairie
	BS24	BP26	PR9

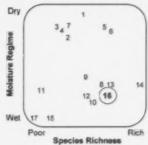
TS15 Graminoid fen: Very wet fibric organic



Ecological Interpretation

Graminoid fens are occasionally found across the Taiga Shield. They are often in close proximity to lake shorelines and can have an organic, soil, rocky, or floating organic substrate. The high water table on these sites can provide the proper conditions for submergent plants. The flat-leaved bladderwort that occurs on these sites is carnivorous. It has modified leaves which are used to capture and digest small invertebrates to meet its nitrogen needs in the nitrogen-poor environment of the fen. Following disturbance, such as ice-action, these ecosites could be expected to remain as graminoid fens.





Ecosite Description (n = 1)

Open fens are characteristically dominated by mosses and support little else in the way of vegetative cover. It is not uncommon for open fens to support many of the plant species found in adjacent ecosites and, while the diversity of species may be relatively high, the cover values are low. In terms of soil, open fens are found on either mineral or organic substrates.

Characteristic Species

Layer (Richness)	Common name	% constancy	% cover	Latin name
tree (2.0)	black spruce	100	0.5	Picea mariana
shrub (9.0)	leatherleaf	100	2	Chamaedaphne calyculata
	sweet gale	100	2	Myrica gale
	lingonberry	100	1	Vaccinium vitis-idaea
	white birch	100	1	Betula papyrifera
	willows	100	0.5	Salix spp.
	dwarf bog-rosemary	100	0.5	Andromeda polifolia
	northern bog-laurel	100	0.5	Kalmia polifolia
	bog bilberry	100	0.5	Vaccinium uliginosum
	black spruce	100	0.5	Picea mariana
herb (8.0)	beaked sedge	100	10	Carex rostrata
	sedges	100	5	Carex spp.
	cloudberry	100	5	Rubus chamaemorus
	flat-leaved	100	1	Utricularia intermedia
	bladderwort northern reed grass	100	0.3	Calamagrostis inexpansa
	water hemlock	100	0.3	Cicuta maculata
	common scouring	100	0.3	Equisetum hyemale
	marsh cinquefoil	100	0.1	Comarum palustre
moss & lichen	Schreber's moss	100	19	Pleurozium schreberi
(38.0)	hair-cap moss	100	0.5	Polytrichum spp.
	Sphagnum moss	100	0.3	Sphagnum spp.
	other mosses	100	33	

TS16 Open fen: Moderately wet mesic organic

Layer (Richness)	Common name	% constancy	% cover	Latin name
moss & lichen	green reindeer lichen	100	0.5	Cladina mitis
(38.0)	grey reindeer lichen	100	0.5	Cladina rangiferina
	cup and spike lichens	100	0.5	Cladonia spp.
	other lichens	100	0.3	
ground cover	water	100	31	
	rock	100	19	
	needle litter	100	10	

Horizon start depth 0	Profile
10	Of ₁₀
20	
30	Om _{to}
43	
50	
60	
70	R ₁₀
80	
80	

Site Features

Soil Great Group - Order	Fibrisol Organic ₁₀
Parent Material	Organic ₁₀
Moisture Regime	Moderately Wet10
Drainage	Very Poor ₁₀
Slope	(0-0.5)10
Topographic Position	Level ₁₀
Aspect	No Aspect ₁₀
Surface Texture	Organic Fibric ₁₀
Effective Texture	Organic Mesic ₁₀

Tree Species

Forest Productivity

	bS
Site Index (m at 50 years)	$5.6 \pm x$
Volume (m3/ha)	*
MAI (m³/ha/yr)	
Basal Area (m²/ha)	$0.8 \pm x$
Age (years)	84 ± 172
Height (m)	$6.8 \pm x$
D.B.H. (cm)	$9.9 \pm x$
Density (stems/ha)	$100 \pm x$

Ecozonal Synonyms

Taiga Shield	Boreal Shield
-	BS25

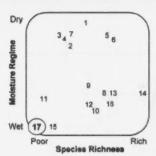
Boreal Plain	Prairie
BP27	NA

Ecological Interpretation

Open fens are more common than the low sample size would imply; they generally occur as small pockets nested within other fen ecosites. Rarely do open fens cover large expanses. Repeated disturbances could maintain an open fen area in this early successional state. In the absence of disturbance, it is likely that succession toward the surrounding fen condition, in which it is embedded, would occur.

TS17 Lichen rocky shore: Very wet nonsoil





Ecosite Description (n = 4)

Rocky shore ecosites are generally devoid of vascular plants. Ring lichen often covers much of the rock on these sites. Occasional patches of Labrador tea or scattered black spruce or white birch may also be found on these sites. While not identified in the species list, ferns may occasionally be found. The substrate of these sites is usually just rock and water.

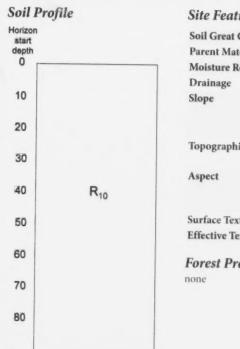
Characteristic Species

Layer (Richness)	Common name	% constancy	% cover	Latin name
tree (1.3)				
shrub (1.3)	lingonberry	50	0.8	Vaccinium vitis-idaea
	white birch	75	0.7	Betula papyrifera
	Labrador tea	75	0.4	Ledum groenlandicum
	black spruce	50	0.3	Picea mariana
herb (0.8)				
moss & lichen	other mosses	100	0.6	
(24.3)	cup and spike lichens	100	2	Cladonia spp.
	northern reindeer lichen	75	2	Cladina stellaris
	green reindeer lichen	75	0.7	Cladina mitis
	grey reindeer lichen	50	0.4	Cladina rangiferina
	other lichens	100	65	
ground cover	rock	100	84	
	water	100	7	

Ecozonal Synonyms

Taiga Shield	Boreal Shield	Boreal Plain	Prairie
	NA	NA	NA

Lichen rocky shore: Very wet nonsoil



Site Features

Soil Great Group - Order	Nonsoil
Parent Material	
	Rockio
Moisture Regime	Very Wet10
Drainage	Very Poor10
Slope	(2-5)5
	$(0-0.5)_2$
	$(5-9)_2$
Topographic Position	Toe Slopes
	Level ₂
Aspect	West ₅
	East ₂
	No Aspect2
Surface Texture	Rockto
Effective Texture	Rock ₁₀
Faract Draductivity	

Forest Productivity

Ecological Interpretation

Rocky shores can be relatively extensive in the Taiga Shield, almost always occurring as linear features along lakeshores. These ecosites are regularly disturbed by wave action during the summer and ice action during the winter which prevents most vegetation from taking root. Having no soil to speak of, classification of moisture regime is somewhat arbitrary. However, the dominant forms of vegetation supported on these sites are largely wetland to aquatic in nature and as a result, the moisture regime listed is very wet, and the drainage is listed as very poor.

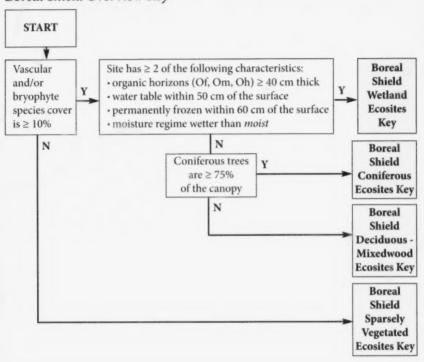
6.2 BOREAL SHIELD

Keys & Fact Sheets

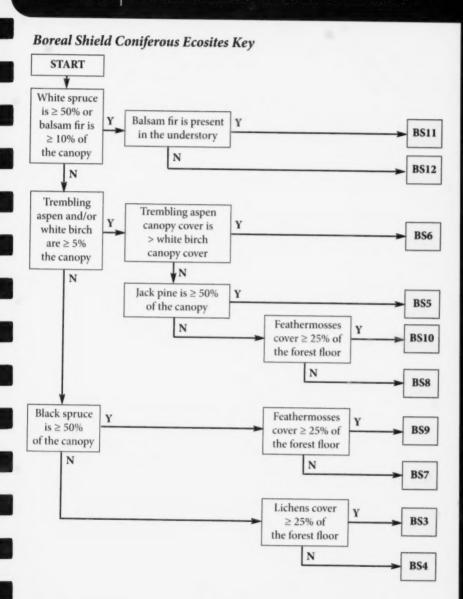
Ecosites of the Boreal Shield

- BS1 Sand heather floccose tansy sand dune: Moderately fresh sand
- BS2 Lichen / felsenmeer bedrock: Dry nonsoil
- BS3 Jack pine / blueberry / lichen: Moderately fresh sand
- BS4 Jack pine black spruce / feathermoss: Moderately dry sand
- BS5 Jack pine white birch / feathermoss: Moderately dry sand
- BS6 Jack pine trembling aspen / green alder: Moderately fresh loamy sand
- BS7 Black spruce / blueberry / lichen: Moderately dry sand
- BS8 Black spruce white birch / lichen: Moderately dry sandy loam
- BS9 Black spruce jack pine / feathermoss: Moderately fresh sandy loam
- BS10 Black spruce white birch / feathermoss: Fresh sand
- BS11 White spruce balsam fir / feathermoss: Fresh sandy loam
- BS12 White spruce / crowberry / feathermoss: Moderately fresh sand
- BS13 White birch black spruce trembling aspen: Moderately fresh sand
- BS14 White birch / lingonberry Labrador tea: Moderately dry sand
- BS15 Trembling aspen white birch / green alder: Moderately fresh loamy sand
- BS16 Black spruce / balsam poplar swamp / river alder swamp: Very moist mesic organic
- BS17 Black spruce treed bog: Very moist mesic organic
- BS18 Labrador tea shrubby bog: Moderately wet mesic organic
- BS19 Graminoid bog: Very wet humic organic
- BS20 Open bog: Moderately wet fibric organic
- BS21 Tamarack treed fen: Wet fibric organic
- BS22 Leatherleaf shrubby poor fen: Very wet fibric organic
- BS23 Willow shrubby rich fen: Wet fibric organic
- BS24 Graminoid fen: Very wet humic organic
- BS25 Open fen: Wet mesic organic
 - BS26 Rush sandy shore: Very moist sand
 - BS27 Sedge rocky shore: Very moist sand

Boreal Shield Overview Key



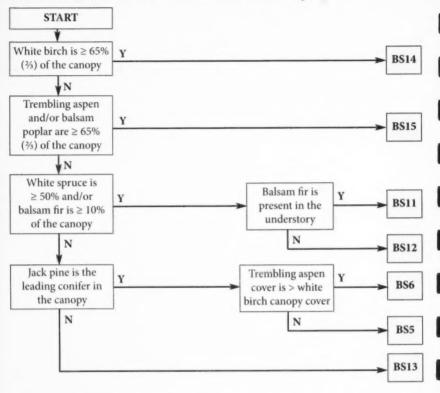
6.2 Boreal Shield Keys & Fact Sheets



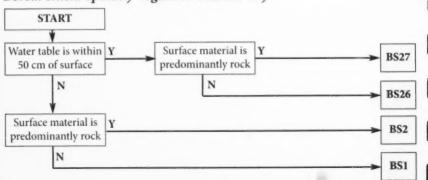
BS1

Boreal Shield Keys & Fact Sheets

Boreal Shield Deciduous - Mixedwood Ecosites Key

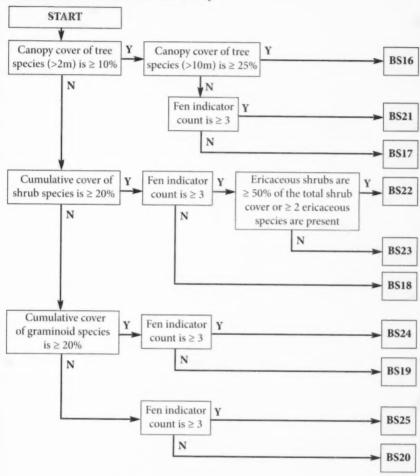


Boreal Shield Sparsely Vegetated Ecosites Key



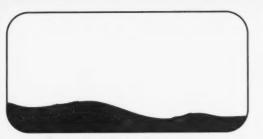
BS1 Boreal Shield Keys & Fact Sheets

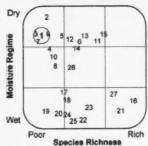
Boreal Shield Wetland Ecosites Key



BS1

Sand heather - floccose tansy sand dune: Moderately fresh sand





Ecosite Description (n = 32)

BS1 ecosites generally lack vegetation as they are active sand dunes. Birch, jack pine, and black spruce can occasionally be found in both tree and shrub form but are widely scattered. Sand heather and crowberry are the dominant shrubs (but with low cover values) and red fescue and northern brome are the most frequently occurring herbs. Soils associated with BS1 are nearly always fine to medium sands. Due to the eolian and colluvial movement of the sand and silt deposits, it is not uncommon to find 'tiger stripe' soil profiles that exhibit dozens of layers of deposition and weathering. These ecosites are restricted to the dunes on the south side of Lake Athabasca.

Characteristic	Species
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Layer (Richness)	Common name	% constancy	% cover	Latin name
tree (0.5)				
shrub (1.8)	sand-heather	50	4	Hudsonia tomentosa
	sand felt-leaf willow	19	0.7	Salix silicicola
	Tyrrell's willow	9	2	Salix tyrrellii
	Turnor's willow	6	3	Salix turnorii
	sand-dune small-fruited willow	6	0.6	Salix brachycarpa
herb (4.1)	red fescue	53	1	Festuca rubra
	northern brome	50	0.5	Bromus pumpellianus
	floccose tansy	44	4	Tanacetum huronense
	plains wormwood	44	0.5	Artemisia campestris
	Mackenzie hairgrass	34	0.4	Deschampsia mackenzieana
	sand stitchwort	19	0.9	Stellaria arenicola
	Athabasca thrift	6	0.4	Armeria maritima
moss & lichen (3.3	3)			
ground cover	exposed soil	97	76	*
	leaf litter	59	2	
	woody debris	53	1	

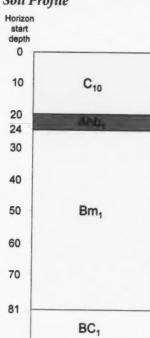
Ecozonal Synonyms

Taiga Shield	Boreal Shield	Boreal Plain Pra	
NA		NA	NA

BS₁

Sand heather - floccose tansy sand dune: Moderately fresh sand

Soil Profile



Sito Features

Site Features	
Soil Great Group - Order	Regosol ₉ Dystric Brunisol ₁
Parent Material	Eolian ₉ Colluvial ₁
Moisture Regime	Moderately Fresh ₆ Moderately Dry ₄
Drainage	Rapids Very Rapids Wells
Slope	$(0-0.5)_2$ $(2-5)_2$ $(0.5-2)_1$ $(5-9)_1$ $(15-30)_1$ $(>30)_1$
Topographic Position	Mid-Slope ₄ Level ₂ Upper Slope ₁ Crest ₁
Aspect	No Aspect ₃ North ₂ East ₂ South ₂ West ₁
Surface Texture	Sandio
Effective Texture	Sand ₉

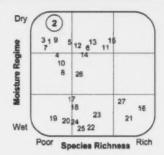
Forest Productivity

	Tree S	Species
	jР	wB
Site Index (m at 50 years)	$8.2 \pm x$	$11.1 \pm x$
Volume (m³/ha)	-	-
MAI (m³/ha/yr)	-	-
Basal Area (m²/ha)	$0.5 \pm x$	$0.8 \pm x$
Age (years)	34 ± 76	57 ± 32
Height (m)	$4.2 \pm x$	$4.6 \pm x$
D.B.H. (cm)	$7.6 \pm x$	10 ± x
Density (stems/ha)	$100 \pm x$	$100 \pm x$

Ecological Interpretation

This ecosite represents the general sand heather sand dune condition although it is largely based on the vegetation and conditions found specifically within the Athabasca Sand Dune ecodistrict. The characteristic species table also includes many of the endemic species of the Athabasca dunes even though the constancy values were below 40%. Tyrell's willow, while not technically endemic to the Athabasca dunes, is included for completeness. Most of the endemic species are listed as species of special concern under the federal Species at Risk Act.





Ecosite Description (n = 3)

BS2 ecosites are largely unvegetated boulder fields or bedrock. Scattered shrubby white birch or black spruce may occasionally take root with sporadic occurrences of lingonberry, prickly rose, Labrador tea, Saskatoon, or pin cherry. These ecosites are relatively dry and lack any substantial quantities of herbaceous species. Crust and leaf lichens are common on the rocks which cover this ecosite.

Characteristic Species

Layer (Richness)	Common name	% constancy	% cover	Latin name
tree (1.3)				
shrub (2.0)	white birch	67	2	Betula papyrifera
	black spruce	67	2	Picea mariana
herb (4.3)				
moss & lichen	other mosses	67	2	
(25.3)	northern reindeer lichen	100	10	Cladina stellaris
	green reindeer lichen	100	4	Cladina mitis
	cup and spike lichens	100	3	Cladonia spp.
	grey reindeer lichen	100	1	Cladina rangiferina
ground cover	leaf litter	100	3	
	woody debris	100	0.3	
	rock	67	6	
	needle litter	67	0.5	

Ecozonal Synonyms

Taiga Shield	Boreal Shield	Boreal Plain	Prairie
NA		NA	NA

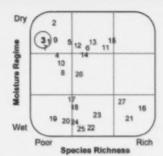
BS2 Lichen/felsenmeer - bedrock: Dry nonsoil

Soil Profile	Site Features	
Horizon start depth	Soil Great Group - Order Parent Material	Nonsoil ₁₀ Rock ₇ Morainal ₃
	Moisture Regime	Dry ₁₀
10	Drainage	Very Rapid ₁₀
20	Slope	(5-9) ₃ (15-30) ₃ (>30) ₃
30	Topographic Position	Mid-Slope-
40 R ₁₀	Aspect	East ₇ West ₃
	Surface Texture	Rockio
50	Effective Texture	Rock ₁₀
60	Forest Productivity	Tree Species
70	Site Index (m at 50 years)	$4.9 \pm x$
00	Volume (m³/ha)	
80	MAI (m³/ha/yr) Basal Area (m²/ha)	
	Age (years)	$0.6 \pm x$
	Height (m)	142 ± 89 $6.4 \pm x$
	D.B.H. (cm)	8.4 ± x
	Density (stems/ha)	100 ± x

Ecological Interpretation

Felsenmeer or 'rock sea' conditions are somewhat uncommon in the Boreal Shield although exposed bedrock is more common. When boulder fields occur, they usually do so as talus slopes, near the base of or on the boulder apron of eskers, or as boulder pavement. The sparse vegetation that exists on these sites occurs in the cracks between the rocks. Pink corydalis can sometimes be found on these sites which make them resemble the TS1 ecosite of the Taiga Shield.





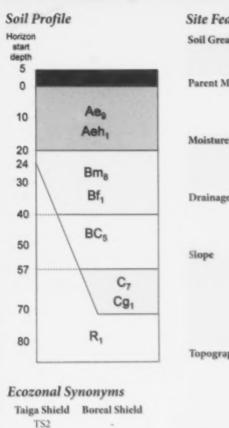
Ecosite Description (n = 129)

BS3 ecosites are dominated by jack pine in the overstory. Approximately 75% of BS3 ecosites are pure jack pine. The vascular plant understory of BS3 ecosites is relatively sparse but includes black spruce, blueberry and lingonberry. Herbs are virtually absent. The forest floor is characteristically covered with reindeer lichens although Schreber's moss may also occasionally be prominent and needle litter cover is significant. Lichen species diversity is high. Soils associated with this ecosite are deep sands.

Characteristic Species

Layer (Richness)	Common name	% constancy	% cover	Latin name
tree (1.8)	jack pine	99	27	Pinus banksiana
	black spruce	50	10	Picea mariana
shrub (3.0)	blueberry	89	9	Vaccinium myrtilloides
	lingonberry	86	4	Vaccinium vitis-idaea
	black spruce	52	5	Picea mariana
	jack pine	47	2	Pinus banksiana
herb (1.1)				
moss & lichen	Schreber's moss	67	8	Pleurozium schreberi
(24.3)	electric eels	50	0.6	Dicranum polysetum
	Dicranum moss	43	1	Dicranum spp.
	other mosses	66	1	
	green reindeer lichen	99	38	Cladina mitis
	cup and spike lichens	96	5	Cladonia spp.
	northern reindeer lichen	83	4	Cladina stellaris
	grey reindeer lichen	61	3	Cladina rangiferina
	other lichens	41	3	*
ground cover	woody debris	100	6	*
	needle litter	98	20	
	leaf litter	65	3	*
	rock	43	6	

BS3 Jack pine/blueberry/lichen: Moderately fresh sand



Prairie

NA

Site Features	
Soil Great Group - Order	Dystric Brunisol ₈ Regosol ₁ Nonsoil ₁
Parent Material	Morainal ₄ Fluvial ₃ Eolian ₁ Glacio-fluvial ₁
Moisture Regime	Moderately Freshs Moderately Drys Drys Freshs
Drainage	Rapid ₆ Very Rapid ₂ Well ₁ Imperfect ₁
Slope	(0-0.5) ₂ (0.5-2) ₂ (2-5) ₂ (5-9) ₁ (9-15) ₁ (15-30) ₁ (>30) ₁
Topographic Position	Upper Slopes Mid-Slopes Crests Toe Slopes Lower Slopes Levels
Aspect	No Aspect ₂ North ₂ South ₂ West ₂ East ₁
Surface Texture	Sand ₆ Loamy Sand ₂
Effective Texture	Sand ₆

Boreal Plain

BP2

Loamy Sand₂ Sandy Loam₁ Silty Sand₁

BS3 Jack pine/blueberry/lichen:

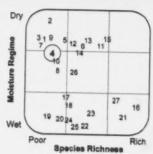
Forest Productivity			Tree Specie	es	
	bS	jΡ	tA	wB	wS
Site Index (m at 50 years)	10.6 ± 1.1	9.5 ± 0.5	$10.7 \pm x$	$6.6 \pm x$	8.3 ± 15.2
Volume (m³/ha)	5.6 ± 2.2	26.6 ± 4.8		1.6 ± 20.3	$3.4 \pm x$
MAI (m³/ha/yr)	0.11 ± 0.04	0.36 ± 0.06		$0.04 \pm x$	$0.05 \pm x$
Basal Area (m²/ha)	2.2 ± 0.5	9.6 ± 1.1	-	1.3 ± 10.6	1 ± x
Age (years)	80 ± 6	86 ± 4	65 ± 13	121 ± 375	88 ± 94
Height (m)	8.9 ± 0.7	8.6 ± 0.4	-	7.1 ± 2.5	9.6 ± x
D.B.H. (cm)	11.3 ± 1.1	12.6 ± 0.6	-	8.7 ± 9.1	$11.2 \pm x$
Density (stems/ha)	231 ± 47	752 ± 77	-	$300 \pm x$	$100 \pm x$

Ecological Interpretation

These are the most commonly encountered ecosites on the Boreal Shield. They are relatively dry and occur in almost every topographic position and with every slope class. They are associated with the hills of eskers and drumlins as well as level plains. Following disturbance, these ecosites will usually return to being pine dominated, provided an adequate cone crop existed prior to disturbance. When compared to BS4 ecosites these ecosites tend to be drier, have less understory, and more open canopy. In the absence of disturbance, these ecosites may transition toward the BS7 ecosite condition.

BS4 Jack pine - black spruce/feathermoss: Moderately dry sand





Ecosite Description (n = 88)

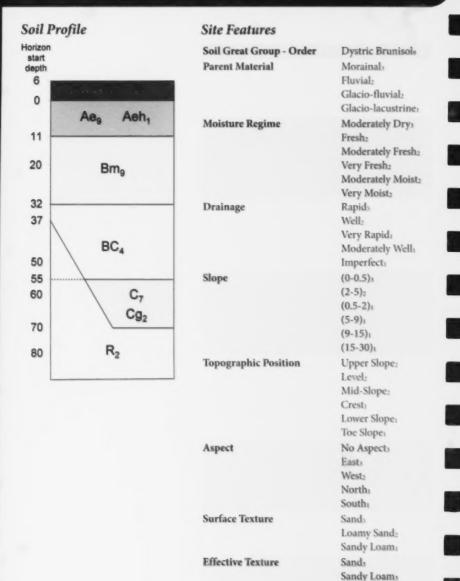
BS4 ecosites are dominated by jack pine and black spruce in the overstory. However, about 60% of the sites encountered may be pure jack pine. The understory of BS4 ecosites consists primarily of ericaceous shrubs as well as green alder. The forest floor is predominantly a mixture of needle litter and Schreber's moss. The moisture regime of BS4 ecosites tends toward being relatively fresh and soils tend to be sandy loams and loamy sands.

Characteristic Species

Layer (Richness)	Common name	% constancy	% cover	Latin name
tree (2.0)	jack pine	100	40	Pinus banksiana
	black spruce	51	17	Picea mariana
shrub (3.7)	lingonberry	92	6	Vaccinium vitis-idaea
	blueberry	91	8	Vaccinium myrtilloides
	green alder	53	10	Alnus viridis
	black spruce	49	3	Picea mariana
	Labrador tea	47	6	Ledum groenlandicum
	bearberry	41	5	Arctostaphylos uva-ursi
herb (2.5)				7-7
moss & lichen	Schreber's moss	81	24	Pleurozium schreberi
(19.7)	Dicranum moss	57	1	Dicranum spp.
	stair-step mosses	40	1	Hylocomium splendens
	other mosses	60	1	^
	green reindeer lichen	85	5	Cladina mitis
	cup and spike lichens	75	3	Cladonia spp.
	grey reindeer lichen	39	0.9	Cladina rangiferina
ground cover	woody debris	98	8	
	needle litter	94	27	
	leaf litter	77	7	

Ecozonal Synonyms

Taiga Shield	Boreal Shield	Boreal Plain	Prairie
NA		BP3 + BP12	NA



Loamy Sanda

BS4 Jack pine - black spruce/feathermoss: Moderately dry sand

Forest Productivity

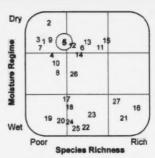
,		Tree Species			
	bS	jР	tA	wB	wS
Site Index (m at 50 years)	11.1 ± 1.1	10.4 ± 1.6	13 ± 1.4	7.5 ± 3.8	
Volume (m³/ha)	12.8 ± 5.3	58.6 ± 9.9	3.3 ± 42.2	1.6 ± 4.3	5.5 ± x
MAI (m³/ha/yr)	0.22 ± 0.08	0.84 ± 0.14	$0.08 \pm x$	$0.13 \pm x$	$0.06 \pm x$
Basal Area (m²/ha)	4.4 ± 1.3	15 ± 1.6	1.1 ± 7	0.9 ± 0.8	1.1 ± x
Age (years)	70 ± 6	75 ± 4	69 ± 17	77 ± 20	92 ± x
Height (m)	9.2 ± 0.5	10.2 ± 0.4	8.4 ± 24.1	8.5 ± 1.3	12.9 ± x
D.B.H. (cm)	10.7 ± 0.8	11.7 ± 0.5	11.7 ± 38.1	10.5 ± 4.3	11.9 ± x
Density (stems/ha)	475 ± 130	1386 ± 147	100 ± x	100 ± x	100 ± x

Ecological Interpretation

These ecosites are commonly encountered in the Boreal Shield. While similar in overstory to BS3, they are moister, have a greater proportion of black spruce, are associated with a greater diversity of vascular plants, and have more of a closed canopy. Following fire, these sites will usually return to being pine and pine/spruce dominated. In the absence of disturbance these sites may transition toward the BS9 ecosite condition.

BS5 Jack pine - white birch/feathermoss: Moderately dry sand





Ecosite Description (n = 36)

BS5 ecosites are predominantly jack pine but may have substantial proportions of white birch and/or black spruce. The shrub layer of these sites is mostly ericaceous shrubs and green alder. Willow and trembling aspen may also be found occasionally in the understory. Small amounts of twinflower and bunchberry may also be found amongst the Schreber's moss. The extensive leaf litter found on the forest floor is characteristic of this ecosite.

Characteristic Species

Layer (Richness)	Common name	% constancy	% cover	Latin name
tree (3.2)	jack pine	100	25	Pinus banksiana
	white birch	100	11	Betula papyrifera
	black spruce	69	7	Picea mariana
shrub (4.1)	lingonberry	94	7	Vaccinium vitis-idaea
	blueberry	92	6	Vaccinium myrtilloides
	Labrador tea	64	7	Ledum groenlandicum
	green alder	56	10	Alnus viridis
	black spruce	56	3	Picea mariana
herb (3.4)				
moss & lichen	Schreber's moss	100	20	Pleurozium schreberi
(22.9)	electric eels	81	0.7	Dicranum polysetum
	Dicranum moss	69	2	Dicranum spp.
	stair-step moss	64	1	Hylocomium splendens
	other mosses	67	0.9	
	green reindeer lichen	92	6	Cladina mitis
	cup and spike lichens	89	2	Cladonia spp.
	northern reindeer lichen	56	0.9	Cladina stellaris
	grey reindeer lichen	73	2	Cladina rangiferina
ground cover	woody debris	97	9	
	leaf litter	92	25	
	needle litter	89	11	
	rock	50	3	

BS5 Jack pine - white birch/feathermoss: Moderately dry sand

Soil Profile Site Features Horizon Soil Great Group - Order Dystric Brunisols start Regosoli depth Parent Material 5 Morainal₆ 0 Eolian: Aea Ah, Fluvial 5 Glacio-fluvial AB, Glacio-lacustrine 17 Moisture Regime Moderately Drys Moderately Fresh Fresh₂ Bm₇ Bf₂ 30 Drainage Rapids. Very Rapid₂ 36 BC₃ Well: BCg₁ 44 Imperfect₁ Slope $(0-0.5)_2$ 50 $(0.5-2)_2$ $(2-5)_2$ 60 Ce $(5-9)_1$ Cg₁ $(9-15)_1$ 70 $(15-30)_1$ 75 $(>30)_1$ **Topographic Position** Upper Slope₂ R₁ 80 Lower Slope₂ Crest: **Ecozonal Synonyms** Mid-Slope2 Level Taiga Shield **Boreal Shield** North₃ Aspect NA Easts **Boreal Plain** Prairie No Aspect2 BP3 + BP12 NA South₂ West **Surface Texture** Sand₆ Loamy Sand₂

Effective Texture

Silty Sandı Sandy Loamı

Sands Loamy Sands Sandy Loams Sandy Clay Loams

BS5 Jack pine - white birch/feathermoss: Moderately dry sand

Forest Productivity			Tree Species		
	bS	jР	tA	wB	wS
Site Index (m at 50 years)	11.6 ± 1.7	11 ± 0.9	13.7 ± 49.6	10.6 ± 1.7	9.2 ± 16.8
Volume (m³/ha)	9.7 ± 3.4	62.8 ± 21.9	4.8 ± 8.1	8 ± 5.1	20.1 ± 225.3
MAI (m³/ha/yr)	0.15 ± 0.05	0.97 ± 0.43	0.09 ± 0.16	0.19 ± 0.12	0.19 ± 1.93
Basal Area (m²/ha)	3 ± 0.7	13.6 ± 3.6	1.2 ± 1.7	2.3 ± 1	3.1 ± 30.3
Age (years)	78 ± 10	72 ± 7	49 ± 26	71 ± 7	96 ± 36
Height (m)	9.8 ± 0.9	11 ± 0.8	10.1 ± 1.6	9.2 ± 0.8	14.3 ± 62.9
D.B.H. (cm)	11.6 ± 1	13.8± 1.1	11.4 ± 8	10.4 ± 0.9	18 ± 107
Density (stems/ha)	286 ± 62	965 ± 231	$100 \pm x$	252 ± 85	$100 \pm x$

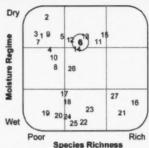
Ecological Interpretation

These ecosites may occur in either a coniferous or a mixedwood_condition. Following disturbance, these sites would likely return to a BS5 condition. However, in the absence of fire, the site may transition towards BS8, BS9, BS10, or BS13 due to the diversity of species in the overstory.



Jack pine - trembling aspen/green alder: Moderately fresh loamy sand





Ecosite Description (n = 29)

BS6 ecosites are characterized by having a variable composition of trembling aspen in combination with jack pine. Black spruce and/or white birch are also commonly found in both the overstory and understory. In addition ericaceous shrubs, green alder, and willow can also be found on these ecosites. As expected (from the aspen cover), the leaf litter found on the forest floor is relatively high on this ecosite.

Characteristic Species

Layer (Richness)	Common name	% constancy	% cover	Latin name
tree (3.5)	trembling aspen	100	20	Populus tremuloides
	jack pine	93	29	Pinus banksiana
	black spruce	66	19	Picea mariana
	white birch	52	9	Betula papyrifera
shrub (4.9)	blueberry	97	4	Vaccinium myrtilloides
	lingonberry	93	7	Vaccinium vitis-idaea
	green alder	79	13	Alnus viridis
	trembling aspen	62	0.8	Populus tremuloides
	Labrador tea	48	6	Ledum groenlandicum
	willows	48	2	Salix spp.
herb (6.2)	bunchberry	55	2	Cornus canadensis
	wild lily-of-the-valley	55	0.6	Maianthemum canadense
	fireweed	52	0.4	Chamerion angustifolium
moss & lichen	Schreber's moss	93	23	Pleurozium schreberi
(18.3)	stair-step moss	76	2	Hylocomium splendens
	Dicranum moss	76	1	Dicranum spp.
	knight's plume	41	1	Ptilium
				crista-castrensis
	other mosses	76	0.7	
	cup and spike lichens	79	0.6	Cladonia spp.
	green reindeer lichen	66	5	Cladina mitis
	grey reindeer lichen	41	1	Cladina rangiferina

BS6 Jack pine - trembling aspen/green alder: Moderately fresh loamy sand

Layer (Richness)	Common name	% constancy	% cover	Latin name
ground cover	woody debris	100	12	-
	leaf litter	97	37	
	needle litter	90	16	

Soil Profile

Horizon start depth		
8	Catholin Marie	optoble described the section of
0		
10	A	10
20	andie Die	No.
30	Bm ₉ Bi	mg ₁ Bg ₁ Bf ₁
38		
	В	IC ₄
51		
60	C ₇	Cg ₁
72		
80	F	₹1

Ecozonal Sy	nonyms	
Taiga Shield NA	Boreal Shield	
Boreal Plain BP4	Prairie NA	

Site Features	
Soil Great Group - Order	Dystric Brunisol ₉ Gleysol ₁
Parent Material	Morainals
	Glacio-fluvials
	Fluvial ₁
	Lacustrine ₁
Moisture Regime	Moderately Dry3
0	Moderately Fresh
	Fresh ₂
	Very Moist
Drainage	Rapids
	Well
	Very Rapida
	Imperfect:
	Poor ₁
Slope	(0.5-2)2
	(2-5)2
	(5-9)2
	(9-15)2
	(15-30)1
	$(0-0.5)_1$
Topographic Position	Upper Slopes
	Mid-Slopes
	Level ₂
	Crest ₂
Aspect	West ₄
	South ₃
	No Aspect2
	North ₁
	East ₁
Surface Texture	Sand ₄
	Loamy Sanda
	Sandy Loam

Silty Clay Loam

BS6 Jack pine - trembling aspen/green alder: Moderately fresh loamy sand

Site Features

Effective Texture	Loamy Sand4
	Sand ₂
	Sandy Loam
	Loam
	Silty Sand
	Silty Loam
	Sandy Clay Loam

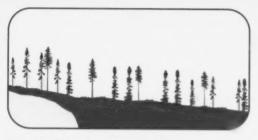
Forest Productivity

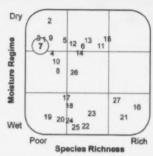
Forest Productivity		Tree S	pecies	
	bS	jР	tA	wB
Site Index (m at 50 years)	12.6 ± 8	12.6 ± 1.5	12.7 ± 1.2	12 ± 4
Volume (m³/ha)	49.6 ± 53	76.6 ± 19.8	13.3 ± 5.8	7.2 ± 6.5
MAI (m³/ha/yr)	0.3 ± 2.18	1.25 ± 0.31	0.29 ± 0.16	0.11 ± 0.13
Basal Area (m²/ha)	9.4 ± 6.4	14.6 ± 2.7	3.4 ± 1.1	2.1 ± 1.2
Age (years)	61 ± 7	64 ± 7	59 ± 7	62 ± 10
Height (m)	10.5 ± 1.8	13 ± 1.1	10.4 ± 0.9	9.9 ± 1.1
D.B.H. (cm)	12 ± 2	15.2 ± 1.7	10.4 ± 1	10.9 ± 1.9
Density (stems/ha)	654 ± 287	922 ± 251	385 ± 113	200 ± 89

Ecological Interpretation

BS6 ecosites are relatively rich in terms of vascular plant species diversity despite being moderately dry to moderately fresh. Like BS5, these ecosites may occur in either a conifer or a mixed-wood condition. Following disturbance and in the absence of silvicultural treatments, these sites may transition toward the BS15 condition and/or return to the BS6 condition depending on their former species composition. In the absence of disturbance, these sites may transition toward the BS4 or BS9 condition.

BS7 Black spruce/blueberry/lichen: Moderately dry sand





Ecosite Description (n = 28)

BS7 ecosites are usually black spruce dominated and may be mixed with subdominant or codominant jack pine. A cover of ericaceous shrubs can be found beneath the tree canopy along with black spruce advanced growth and the occasional willow or green alder. Herbs are sporadically distributed and the dominant ground cover is the reindeer lichens. These sandy sites are usually associated with upper and mid-slope topography.

Characteristic Species

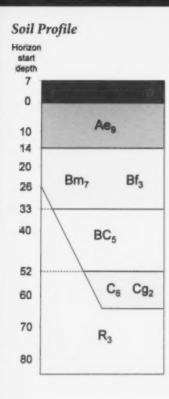
Layer (Richness)	Common name	% constancy	% cover	Latin name
tree (2.3)	black spruce	100	30	Picea mariana
	jack pine	79	14	Pinus banksiana
shrub (3.5)	lingonberry	93	2	Vaccinium vitis-idaea
	blueberry	89	8	Vaccinium myrtilloides
	black spruce	82	6	Picea mariana
	Labrador tea	82	5	Ledum groenlandicum
herb (0.5)				
moss & lichen	Schreber's moss	89	7	Pleurozium schreberi
(24.3)	electric eels	64	1	Dicranum polysetum
	Dicranum moss	57	4	Dicranum spp.
	other mosses	86	3	
	cup and spike lichens	100	6	Cladonia spp.
	green reindeer lichen	93	24	Cladina mitis
	northern reindeer lichen	82	9	Cladina stellaris
	grey reindeer lichen	82	5	Cladina rangiferina
ground cover	woody debris	100	11	
	needle litter	100	10	
	leaf litter	89	3	
	rock	75	2	_

Ecozonal Synonyms

Taiga Shield	Boreal Shield	Boreal Plain	Prairie
TS2		NA	NA

BS7

Black spruce/blueberry/lichen: Moderately dry sand



Site Features

Aspect

Surface Texture

Effective Texture

Soil Great Group - Order	Dystric Brunisol
	Nonsoil
Parent Material	Morainal:
	Glacio-fluvial:
	Glacio-lacustrine
	Fluvial ₁
	Rock
Moisture Regime	Moderately Drye
	Moderately Fresh
	Dryı
	Fresh
	Moderately Moist:
Drainage	Rapida
	Very Rapida
	Well
	Imperfect

	resilient seems
Slope	(2-5)4
	$(5-9)_2$
	$(9-15)_2$
	$(0-0.5)_1$
	$(0.5-2)_1$
Topographic Position	Upper Slop

Upper Slope:
Mid-Slope
Lower Slope:

7764611
West ₃
North ₂
East;
No Aspec

No Aspecti
South
Sanda
Loamy Sand

Sandy Loam:

Sand
Loamy Sand ₂
Sandy Loams
Silty Sand ₁
Silty Loam:
Rock ₁

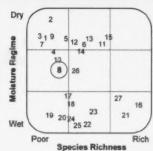
BS7 Black spruce/blueberry/lichen: Moderately dry sand

Forest Productivity						
,	Tree Species					
	bS	jΡ	1A	wB	wS	
Site Index (m at 50 years)	9.6 ± 1.4	9.1 ± 1	10.6 ± 3.3	$10.6 \pm x$	-	
Volume (m³/ha)	15.9 ± 6.5	6.6 ± 3.4	$1.9 \pm x$	-	$103.1 \pm x$	
MAI (m3/ha/yr)	0.22 ± 0.12	0.13 ± 0.06	$0.03 \pm x$	*	-	
Basal Area (m²/ha)	7.3 ± 1.6	3.5 ± 1.1	$1.2 \pm x$	-	$16.9 \pm x$	
Age (years)	88 ± 8	80 ± 9	70 ± 6	90 ± 133	-	
Height (m)	8.6 ± 0.4	8.3 ± 0.9	$8.6 \pm x$	*	$16.5 \pm x$	
D.B.H. (cm)	10.5 ± 0.6	12.1 ± 2	$8.7 \pm x$	-	$30.5 \pm x$	
Density (stems/ha)	833 ± 163	368 ± 157	$200 \pm x$	-	$200 \pm x$	

Ecological Interpretation

BS7 ecosites are relatively poor in terms of vascular plant species diversity. They closely resemble the BS3 ecosite but are spruce dominated and tend to have greater canopy closure and stem density. Given the dry conditions and lack of species, these ecosites may return to their former condition following disturbance. Those ecosites with sufficient pine composition might succeed toward the BS3 condition. BS7 can be considered to be in a climax forest condition. The low ground cover, relatively open canopy, and presence of black spruce in the understory are features that would tend to perpetuate the ecosite in the absence of disturbance.





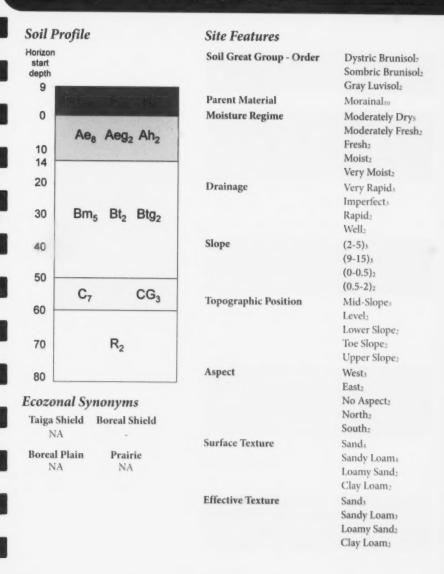
Ecosite Description (n = 6)

BS8 ecosites typically are black spruce dominated, often with locally abundant jack pine, in combination with white birch in the canopy. The understory is composed of ericaceous shrubs, green alder and willow. Black spruce advanced growth can also be considerable. In addition to the lack of herbaceous layer, this ecosite typically has a moss and lichen layer which has low cover but very high species diversity. The forest floor usually shows an abundant layer of leaf litter.

Characteristic Species

Layer (Richness)	Common name	% constancy	% cover	Latin name
tree (3.2)	black spruce	100	31	Picea mariana
	white birch	100	16	Betula papyrifera
	jack pine	83	14	Pinus banksiana
shrub (4.5)	black spruce	100	23	Picea mariana
	blueberry	100	6	Vaccinium myrtilloide:
	lingonberry	100	5	Vaccinium vitis-idaea
	Labrador tea	83	8	Ledum groenlandicum
	green alder	67	19	Alnus viridis
	willows	67	1	Salix spp.
	white birch	50	0.5	Betula papyrifera
herb (1.7)				
moss & lichen	Schreber's moss	83	7	Pleurozium schreberi
(32.3)	electric eels	83	0.5	Dicranum polysetum
	Dicranum moss	67	0.6	Dicranum spp.
	stair-step moss	50	0.8	Hylocomium splenden:
	other mosses	100	2	
	cup and spike lichens	100	1	Cladonia spp.
	green reindeer lichen	83	12	Cladina mitis
ground cover	leaf litter	100	49	
	needle litter	100	8	
	woody debris	83	22	*
	rock	50	5	

BS8 Black spruce - white birch/lichen: Moderately dry sandy loam

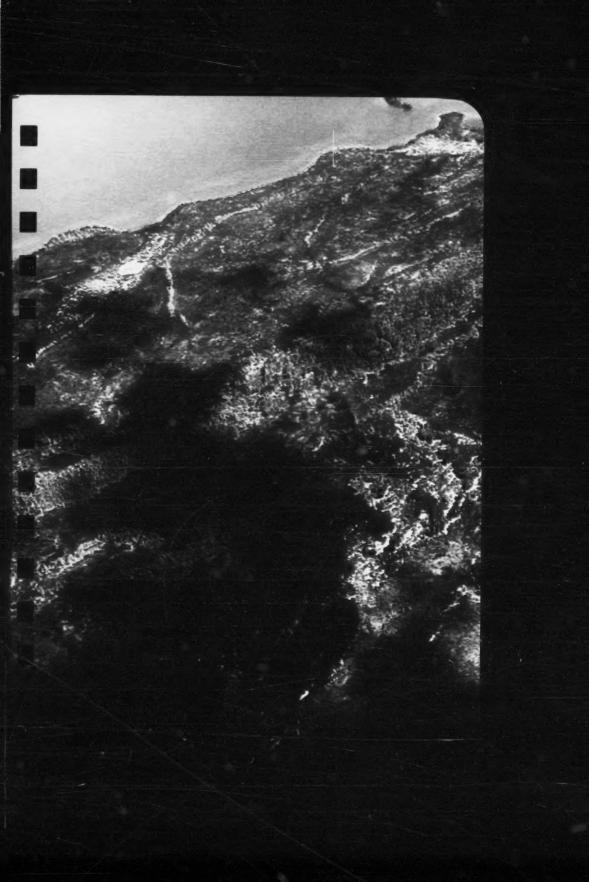


BS8 Black spruce - white birch/lichen: Moderately dry sandy loam

Forest Productivity						
,	Tree Species					
	bS	jΡ	tA	wB		
Site Index (m at 50 years)	9.3 ± 1.6	8.7 ± 3	12.9 ± x	10 ± x		
Volume (m³/ha)	12.8 ± 13.1	28.4 ± 37.1	$70.1 \pm x$	1.6 ± 6.9		
MAI (m³/ha/yr)	0.19 ± 0.18	0.46 ± 0.47	$0.63 \pm x$	$0.1 \pm x$		
Basal Area (m²/ha)	5.8 ± 4.3	7.6 ± 6.2	12.4 ± x	2.3 ± 3.8		
Age (years)	84 ± 14	72 ± 17	117 ± 32	51 ± 13		
Height (m)	8.6 ± 1.5	9.4 ± 3.3	$13.7 \pm x$	8.3 ± 2.3		
D.B.H. (cm)	9.8 ± 1.2	12.3 ± 4	22.1 ± x	10.1 ± 7.1		
Density (stems/ha)	767 ± 607	580 ± 406	300 ± x	267 ± 517		

Ecological Interpretation

These ecosites are relatively uncommon in the Boreal Shield ecozone. Their lack of herbaceous growth and low cover of mosses and lichens are relatively unusual characteristics of Boreal Shield ecosites. However, this ecosite also has the highest lichen and moss diversity in the ecozone. Following disturbance, these ecosites may transition toward the BS14 or BS13 ecosites. In the absence of disturbance, these ecosites may be expected to transition toward the BS10 ecosite condition.





Dry (2		
· L	3,00	12 6 1	15
Moisture Regim	10 8	26	
	19 20	7 18 23 24 25 22	27 16 21
Wet	Poor	25 22	Rich

Ecosite Description (n = 81)

BS9 ecosite canopies are predominantly either pure black spruce or black spruce dominated. These ecosites tend to have high stem density and closed canopy conditions. Ericaceous shrubs and green alder are present on the site but herbaceous cover is low. One of the distinguishing features of this ecosite is the nearly continuous carpet of Schreber's moss.

Layer (Richness)	Common name	% constancy	% cover	Latin name
tree (2.3)	black spruce	100	41	Picea mariana
	jack pine	77	15	Pinus banksiana
shrub (4.0)	lingonberry	96	4	Vaccinium vitis-idaea
	Labrador tea	93	11	Ledum groenlandicum
	blueberry	81	4	Vaccinium myrtilloides
	black spruce	80	6	Picea mariana
	green alder	44	5	Alnus viridis
herb (1.6)				
moss & lichen	Schreber's moss	100	60	Pleurozium schreberi
(23.8)	stair-step moss	84	2	Hylocomium splendens
	electric eels	84	0.7	Dicranum polysetum
	Dicranum moss	77	1	Dicranum spp.
	knight's plume	56	2	Ptilium
				crista-castrensis
	other mosses	75	1	•
	cup and spike lichens	93	2	Cladonia spp.
	green reindeer lichen	90	6	Cladina mitis
	grey reindeer lichen	62	1	Cladina rangiferina
	northern reindeer	47	3	Cladina stellaris
	lichen			
ground cover	woody debris	99	10	*
	leaf litter	88	7	*
	needle litter	84	4	

BS9 Black spruce - jack pine/feathermoss: Moderately fresh sandy loam

Soil Profile Site Features Horizon Soil Great Group - Order Dystric Brunisole start depth Regosoli 12 Gray Luvisol Gleysol Parent Material Morainal: 0 Fluvial Glacio-fluvial: Ae, Aeg, Ah, 10 Glacio-lacustrine: Lacustrine 19 Moisture Regime Fresh₂ Moderately Fresha Moderately Dry₂ 30 Bm₆ Bf₁ Moist: Drainage Very Rapid₄ 40 BC₃ Imperfects 45 Well, 50 Cs Cg₃ Moderately Well: Very Rapida 57 Slope $(0-0.5)_2$ $(0.5-2)_2$ R₂ $(5-9)_2$ 70 $(2-5)_1$ $(9-15)_1$ 80 $(15-30)_1$ (>30)1 **Ecozonal Synonyms Topographic Position** Mid-Slopes Taiga Shield Boreal Shield Upper Slope₂ TS4 Lower Slope: **Boreal Plain** Prairie Level BP12 + BP14 NA Toe Slope Crest Aspect West: East2 No Aspect2 North₂ South₂

Surface Texture

Loamy Sand₂ Sandy Loam₂ Sand₁

Sandy Clay Loam, Silty Loam,

BS9 Black spruce - jack pine/feathermoss: Moderately fresh sandy loam

Site Features

Effective Texture

Sand2

Sandy Loam2

Loamy Sand2

Silty Loam1

Sandy Clay Loam1

Silty Clay1

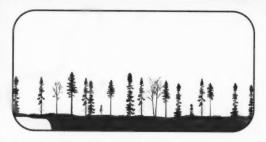
Forest Productivity

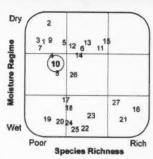
10/03/1/00/00/	Tree Species					
	bP	bS	jP	tA	tL	wB
Site Index (m at 50 years)	$7.6 \pm x$	9.2 ± 0.6	9.9 ± 0.6	9.7 ± 1.6	9.4 ± 11.1	9.2 ± 2.4
Volume (m³/ha)	$3.1 \pm x$	39.5 ± 8.7	16 ± 6.2	2.6 ± 5.1	4.7 ± 27.7	2.8 ± 2.4
MAI (m3/ha/yr)	$0.04 \pm x$	0.52 ± 0.12	0.27 ± 0.11	0.08 ± 0.4	0.07 ± 0.41	0.08 ± 0.06
Basal Area (m²/ha)	$1.1 \pm x$	12.3 ± 1.17	4.8 ± 1.1	0.9 ± 0.5	1.8 ± 8.6	1.8 ± 1.2
Age (years)	108 ± 102	87 ± 5	73 ± 5	70 ± 14	64 ± 27	70 ± 14
Height (m)	$9.6 \pm x$	9.4 ± 0.4	9.3 ± 0.6	9.7 ± 4.8	10.1 ± 2.4	7.8 ± 1
D.B.H. (cm)	$11.6 \pm x$	10.8 ± 0.5	11.6 ± 0.9	10.2 ± 3.1	9.3 ± 11.6	9.8 ± 0.8
Density (stems/ha)	$100 \pm x$	1251 ± 160	484 ± 112	120 ± 56	250 ± 635	225 ± 146

Ecological Interpretation

Although there is no herbaceous layer indicated for this ecosite, herbaceous diversity is relatively high. This is because the ecosite provides a range of microsite conditions that give refuge to a variety of herbaceous species that are not common enough to have a constancy value of > 40%. The lack of hardwood species and the occurrence of black spruce in the understory will likely lead to the perpetuation of this ecosite following fire or other disturbance.

BS10 Black spruce - white birch/feathermoss: Fresh sand



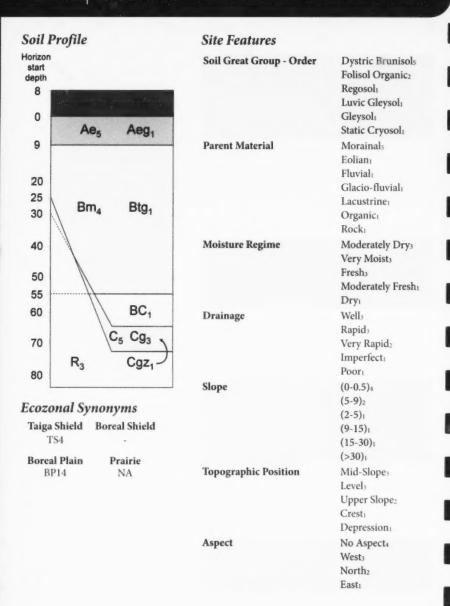


Ecosite Description (n = 15)

BS10 ecosites are dominated by black spruce. Jack pine and/or white birch may also be found in the overstory and the understory is composed of scattered ericaceous shrubs and the occasional willow. Schreber's moss is common as an extensive forest floor covering.

Layer (Richness)	Common name	% constancy	% cover	Latin name
tree (2.8)	black spruce	100	32	Picea mariana
	white birch	93	11	Betula papyrifera
	jack pine	60	11	Pinus banksiana
shrub (3.8)	lingonberry	100	7	Vaccinium vitis-idaea
	black spruce	93	8	Picea mariana
	Labrador tea	80	11	Ledum groenlandicum
	white birch	80	2	Betula papyrifera
	blueberry	67	4	Vaccinium myrtilloides
	willows	53	3	Salix spp.
herb (2.1)				
moss & lichen	Schreber's moss	100	41	Pleurozium schreberi
(28.1)	electric eels	93	0.5	Dicranum polysetum
	stair-step moss	80	5	Hylocomium splendens
	Dicranum moss	67	2	Dicranum spp.
	knight's plume	47	0.5	Ptilium crista-castrensis
	other mosses	87	2	
	cup and spike lichens	100	2	Cladonia spp.
	green reindeer lichen	87	6	Cladina mitis
	northern reindeer lichen	40	2	Cladina stellaris
	grey reindeer lichen	40	0.5	Cladina rangiferina
ground cover	leaf litter	100	11	
	woody debris	100	9	
	needle litter	93	2	
	rock	67	3	-

BS10 Black spruce - white birch/feathermoss:



BS10 Black spruce - white birch/feathermoss: Fresh sand

Site Features

Surface Texture	Sand ₄
	Loamy Sands
	Silty Sand
	Sandy Loam
	Silty Loam
	Sandy Clay
Effective Texture	Sand ₃
	Sandy Loam ₂
	Loamy Sandi
	Silty Loam
	Loam ₁
	Sandy Clay

Forest Productivity

		Tree 3	pecies	
	bS	jР	wB	wS
Site Index (m at 50 years)	11.6 ± 1.7	9.3 ± 1.2	10.7 ± 3.1	$10.7 \pm x$
Volume (m³/ha)	36.9 ± 16.5	28.1 ± 39.1	5 ± 4.5	$28.5 \pm x$
MAI (m³/ha/yr)	0.5 ± 0.18	0.42 ± 0.62	0.13 ± 0.06	$0.32 \pm x$
Basal Area (m²/ha)	11.7 ± 3.4	7.4 ± 8.1	2.6 ± 1.8	$4.7 \pm x$
Age (years)	78 ± 9	66 ± 11	79 ± 20	100 ± 32
Height (m)	9.2 ± 0.8	9.6 ± 1.9	8.1 ± 1.3	17.1 ± x
D.B.H. (cm)	11.4 ± 1.3	10.9 ± 2.3	11.7 ± 2.2	24.5 ± x
Density (stems/ha)	1100 ± 334	767 ± 933	211 ± 118	100 ± x

Rock

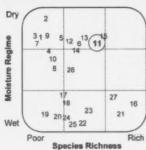
Ecological Interpretation

These ecosites are associated with a wide range of soil orders including Dystric Brunisols, Folisol Organics, and Static Cryosols. Local site diversity creates a range of microhabitats that support a variety of herbaceous species, few of which have high constancy.

While ecologically similar to BS9, these ecosites are differentiated by the presence of white birch and a patchier occurrence of Schreber's moss. Depending on the abundance of jack pine, these ecosites may transition toward BS14 or BS5 following disturbance. In the absence of disturbance, these ecosites may transition toward BS9 as black spruce and feathermoss cover increases.

BS11 White spruce - balsam fir/feathermoss: Fresh sandy loam





Ecosite Description (n = 18)

BS11 ecosites have a white spruce and/or a balsam fir dominated canopy. Trembling aspen and/or white birch may also occur as ancillary canopy species. Low bush-cranberry and prickly rose are common shrubs on this ecosite; red raspberry, northern gooseberry, and common juniper are also common. The herb layer is relatively rich and Schreber's moss occurs as large discontinuous patches or with continuous cover.

Layer (Richness)	Common name	% constancy	% cover	Latin name
tree (3.9)	white spruce	100	20	Picea glauca
	balsam fir	94	20	Abies balsamea
	trembling aspen	56	19	Populus tremuloides
	white birch	39	15	Betula papyrifera
shrub (4.4)	balsam fir	83	5	Abies balsamea
	white spruce	72	6	Picea glauca
	prickly rose	67	1	Rosa acicularis
	white birch	61	0.6	Betula papyrifera
	low bush-cranberry	50	0.3	Viburnum edule
	bearberry	44	3	Arctostaphylos uva-ursi
	trembling aspen	44	0.6	Populus tremuloides
herb (9.8)	twinflower	78	3	Linnaea borealis
	wild sarsaparilla	61	3	Aralia nudicaulis
	starflower	61	0.6	Trientalis borealis
	bunchberry	56	3	Cornus canadensis
	wild lily-of-the-valley	56	1	Maianthemum canadense
	northern bastard toadflax	56	1	Geocaulon lividum
	one-sided wintergreer	50	0.5	Orthilia secunda
moss & lichen	Schreber's moss	100	21	Pleurozium schreberi
(19.3)	stair-step moss	83	2	Hylocomium splendens
	knight's plume	72	0.4	Ptilium crista-castrensis
	Dicranum moss	67	0.5	Dicranum spp.

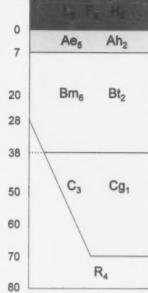
BS11 White spruce - balsam fir/feathermoss: Fresh sandy loam

Layer (Richness)	Common name	% constancy	% cover	Latin name
moss & lichen	other mosses	100	3	
(19.3)	cup and spike lichens	100	2	Cladonia spp.
	green reindeer lichen	56	7	Cladina mitis
ground cover	woody debris	100	31	
	needle litter	100	14	
	leaf litter	100	1.4	

Soil Profile

Horizon start depth





Ecozonal Synonyms

Taiga Shield	Boreal Shield
NA	

Boreal Plain	Prairi
BP13	PR7

Site Features

Gray Luvisol ₂ Nonsoil ₁ Parent Material Morainal ₃ Organic ₂ Fluvial ₁ Lacustrine ₁ Rock ₁ Moisture Regime Fresh ₄ Dry ₂ Moderately Dry ₂ Moderately Fresh ₁ Very Fresh ₁ Very Rapid ₁ Rapid ₂ Slope (0-0.5) ₃ (0.5-2) ₃ (2-5) ₃ (5-9) ₂	Soil Great Group - Order	Dystric Brunisol ₆ Folisol Organic ₂
Parent Material Morainals Organics Fluvials Lacustrines Rocks Moisture Regime Freshs Dry2 Moderately Dry2 Moderately Freshs Very Freshs Very Rapids Rapids Rapids Slope (0-0.5)s (0.5-2)s (2-5)s		
Organic: Fluvial: Lacustrine: Rock: Presh: Dry: Moderately Dry: Moderately Fresh: Very Fresh: Very Rapid: Rapid: Rapid: Slope (0-0.5): (0.5-2): (2-5):		Nonsoil
Fluvial Lacustrine Rock Moisture Regime Fresh Dry2 Moderately Dry2 Moderately Fresh Very Fresh Very Rapid Rapid Rapid Slope (0-0.5) (0.5-2) (2-5)	Parent Material	Morainal:
Lacustrine: Rock: Moisture Regime Fresh: Dry2 Moderately Dry2 Moderately Fresh: Very Fresh: Very Rapid: Rapid: Rapid: Slope (0-0.5): (0.5-2): (2-5):		Organic ₂
Rock Moisture Regime Fresh Dry2 Moderately Dry2 Moderately Fresh Very Fresh Very Rapid Rapid Rapid (0-0.5) (0.5-2) (2-5)		Fluvial
Moisture Regime Fresh ₄ Dry ₂ Moderately Dry ₂ Moderately Fresh ₁ Very Fresh ₁ Very Rapid Rapid Rapid (0-0.5) (0.5-2) (2-5) ₃		Lacustrine ₁
Dry ₂ Moderately Dry ₂ Moderately Fresh ₁ Very Fresh ₁ Very Rapid Rapid Rapid (0-0.5) (0.5-2) (2-5)		Rock
Moderately Dryz Moderately Fresh Very Fresh Very Rapid Rapid: Slope (0-0.5) (0.5-2) (2-5)	Moisture Regime	Fresh ₄
Moderately Fresh Very Fresh Very Fresh Well Very Rapid Rapid: (0-0.5) (0.5-2) (2-5)		Dry ₂
Very Fresh Wells Very Rapids Rapids (0-0.5)s (0.5-2)s (2-5)s		Moderately Dry2
Very Rapids Rapids Slope (0-0.5)s (0.5-2)s (2-5)s		Moderately Fresh
Very Rapids Rapids (0-0.5)s (0.5-2)s (2-5)s		Very Fresh
Rapid: (0-0.5), (0.5-2), (2-5),	Drainage	Wells
Slope (0-0.5), (0.5-2), (2-5),		Very Rapids
(0.5-2) ₃ (2-5) ₃		Rapid ₂
(2-5)s	Slope	(0-0.5)
		$(0.5-2)_3$
(5-9)2		(2-5)3
		(5-9)2

Aspect Easts Wests

Topographic Position

Upper Slope

Mid-Slope

Crest

North: South:

BS11 White spruce - balsam fir/feathermoss: Fresh sandy loam

Site Features

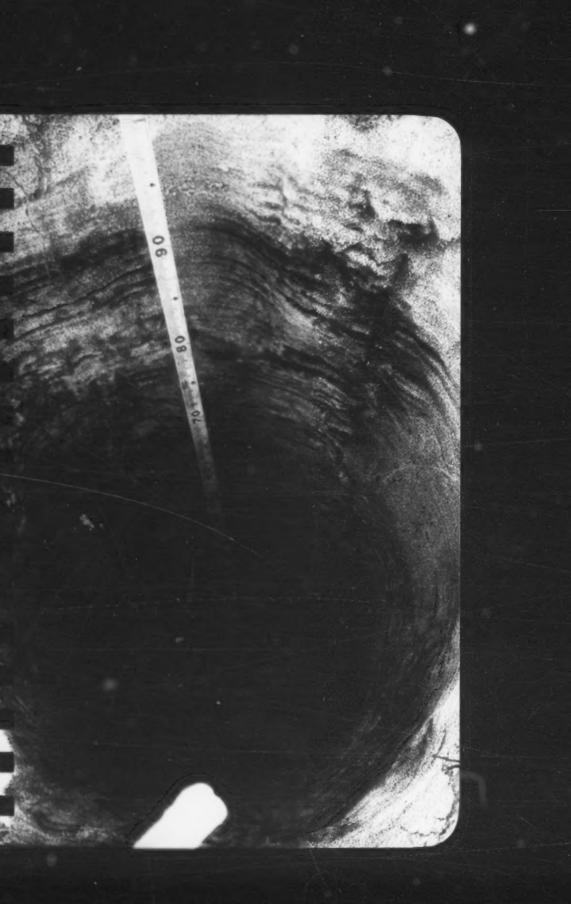
Surface Texture	Loamy Sands
Contact reasons	Silty Clay Loam
	Silty Sand
	Silty Loam
	Clay Loami
Effective Texture	Sandy Loam ₂
	Silty Clay ₂
	Silty Clay Loam:
	Rock ₂
	Sandi
	Loamy Sandi
	Siltı
	Clay Loam

Forest Productivity

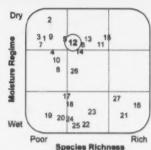
			Tree	Species		
	bF	bS	jP	tA	wB	wS
Site Index (m at 50 years)	15.1 ± 2.5	13.5 ± 4	$6.4 \pm x$	13.7 ± 8.9	9.4 ± 8	8.6 ± 1.5
Volume (m³/ha)	5.3 ± 5.8	50.6 ±36.7	$6.5 \pm x$	6 ± 11.1	30 ± 18.5	85 ± 37.2
MAI (m³/ha/yr)	0.07 ± 0.09	0.4 ± 0.25	$0.08 \pm x$	0.05 ± 0.11	0.25 ± 0.27	0.79 ± 0.28
Basal Area (m²/ha)	1.8 ± 1.2	7.9 ± 4.4	$2.6 \pm x$	1.6 ± 2.6	6.2 ± 3.8	15.1 ± 4.9
Age (years)	45 ± 6	107 ± 22	79 ± 6	53 ± 16	121 ± 48	120 ± 13
Height (m)	8.6 ± 1	13.9 ± 2.5	$7.9 \pm x$	11 ± 5.3	12.8 ± 2	12.5 ± 2
D.B.H. (cm)	10.1 ± 1.5	16 ± 4.1	$18.3 \pm x$	8.5 ± 1.7	18.4 ± 11.6	16.8 ± 2.3
Density (stems/ha)	200 ± 95	350 ± 159	$100 \pm x$	267 ± 287	275 ± 272	569 ± 184

Ecological Interpretation

These ecosites are relatively uncommon on the Boreal Shield ecozone. They are almost exclusively restricted to the region in and around Amisk Lake on the east side of the province. These ecosites are commonly located on sites such as islands that tend not to be exposed to frequent forest fires resulting in stand ages that are older than other ecosites. In the absence of disturbance, these sites can self-perpetuate as the balsam fir and white spruce may follow regeneration mechanisms associated with gap dynamics. However, transition toward the BS12 condition is also possible. Following disturbance these ecosites may lose the fir and spruce components and tend to more closely resemble the BS15 condition. Fires will remove balsam fir from the ecosite because this conifer sheds its cones each year and consequently has no seed bank in the crown.







Ecosite Description (n = 10)

BS12 ecosites often occur as pure or nearly pure white spruce canopied stands. However, it is not uncommon to also find jack pine, white birch, trembling aspen or black spruce in the canopy. Unlike BS11, the understory of this white spruce ecosite is comprised of predominantly ericaceous shrubs and herbaceous species which are more closely associated with drier conditions. The dominant mosses associated with this ecosite are Schreber's and stair-step. Lichens and mosses are common and their diversity is relatively high.

Layer (Richness)	Common name	% constancy	% cover	Latin name
tree (2.6)	white spruce	100	19	Picea glauca
	white birch	60	3	Betula papyrifera
shrub (4.0)	lingonberry	100	14	Vaccinium vitis-idaea
	crowberry	70	26	Empetrum nigrum
	white spruce	70	1	Picea glauca
	white birch	60	0.9	Betula papyrifera
	bearberry	40	7	Arctostaphylos uva-ursi
	blueberry	40	2	Vaccinium myrtilloides
herb (5.2)	northern bastard toadflax	100	2	Geocaulon lividum
	stemless lady's-slipper	60	0.3	Cypripedium acaule
	twinflower	50	2	Linnaea borealis
	lesser rattlesnake- plantain	50	0.4	Goodyera repens
	fireweed	40	0.6	Chamerion angustifolium
moss & lichen	Schreber's moss	90	12	Pleurozium schreberi
(30.4)	electric eels	80	0.6	Dicranum polysetum
	stair-step moss	70	19	Hylocomium splendens
	other mosses	100	1	*
	cup and spike lichens	90	0.8	Cladonia spp.
	green reindeer lichen	70	13	Cladina mitis
	northern reindeer lichen	50	0.5	Cladina stellaris

BS12 White spruce/crowberry/feathermoss: Moderately fresh sand

Layer (Richness)	Common name	% constancy	% cover	Latin name
moss & lichen (30.4)	grey reindeer lichen	40	0.6	Cladina rangiferina
ground cover	leaf litter	100	15	
	woody debris	100	9	
	needle litter	100	5	

Soil Profile

Horizon start depth 7	
0	tioner politicianism protestimos, tip personation
10	Ae ₂ Ah ₁
18	Bm ₂
30	C ₉ Cg ₂
40	
50	
60	R ₁
70	
80	

Ecozonal Synonyms

Taiga Shield	Boreal Shield
TS6 + TS7	*
Boreal Plant	Prairie
NA	NA

Site Features

Sue reatures	
Soil Great Group - Order	Regosol ₈ Dystric Brunisol ₁ Sombric Brunisol ₁
Parent Material	Eolian: Morainal: Fluvial:
Moisture Regime	Moderately Fresh ₆ Moderately Dry ₂ Dry ₁ Moderately Moist ₁
Drainage	Rapids Very Rapids Imperfects
Slope	(2-5) ₃ (9-15) ₂ (15-30) ₂ (0-0.5) ₁ (5-9) ₁
Topographic Position	Mid-Slope ₅ Upper Slope ₂ Crest ₂ Lower Slope ₁
Aspect	Norths Souths West: No Aspects
Surface Texture	Sandı
Effective Texture	Sand ₈ Loamy Sand ₁ Silty Sand ₁

BS12 White spruce/crowberry/feathermoss: Moderately fresh sand

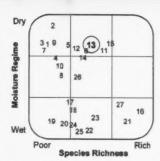
Forest Productivity					
,			Tree Species		
	bS	jΡ	tA	wB	wS
Site Index (m at 50 years)	14.9 ± 51.1	15.1 ± 8.6	20.1 ± x	8.4 ± 24.5	8 ± 2
Volume (m³/ha)			$27.7 \pm x$	2.2 ± 27.8	69.1 ± 56
MAI (m³/ha/yr)			$0.2 \pm x$	$0.04 \pm x$	0.6 ± 0.43
Basal Area (m²/ha)	$0.5 \pm x$	$0.7 \pm x$	$4.4 \pm x$	1.8 ± 14.8	15.8 ± 10.5
Age (years)	108 ± 45	54 ± 25	131 ± 184	83 ± 39	111 ± 16
Height (m)	$8.7 \pm x$	$7.7 \pm x$	$14.1 \pm x$	7.4 ± 3.2	10.2 ± 2.1
D.B.H. (cm)	$7.8 \pm x$	9.2 ± x	15.6 ± x	11.2 ± 31.4	18 ± 7.7
Density (stems/ha)	100 ± x	$100 \pm x$	$200 \pm x$	150 ± 635	678 ± 543

Ecological Interpretation

These ecosites are not particularly common across the Boreal Shield ecozone, in part because of their age which is likely older that the normal fire-return interval and contributes to the dominance of white spruce in the overstory, and in part because white spruce is not as common in the ecozone. When these sites are encountered, they tend to be older, which may suggest that their previous successional stage was a BS15 or, more likely, a BS11 ecosite. Following disturbance by fire, these ecosites may transition toward the BS13 or BS14 conditions. In the absence of disturbance, these ecosites may remain in their current state but with an increased proportion of taller shrubs such as pin cherry, green alder, low bush-cranberry, and willow.

BS13 White birch - black spruce - trembling aspen: Moderately fresh sand





Ecosite Description (n = 25)

White birch and black spruce occur in the overstory approximately 70 percent of the time on this ecosite. However, birch and trembling aspen or black spruce and trembling aspen canopy combinations are also possible. Ericaceous shrubs, green alder, low bush-cranberry, and willow are characteristic understory species. The herb layer associated with BS13 is relatively abundant with species like wild sarsaparilla; mosses also occur but with patchy cover.

Layer (Richness)	Common name	% constancy	% cover	Latin name
tree (3.3)	white birch	92	32	Betula papyrifera
	black spruce	80	27	Picea mariana
	trembling aspen	72	20	Populus tremuloides
shrub (5.0)	lingonberry	92	11	Vaccinium vitis-idaea
	black spruce	64	7	Picea mariana
	white birch	64	2	Betula papyrifera
	green alder	60	10	Alnus viridis
	blueberry	56	7	Vaccinium myrtilloides
	Labrador tea	48	11	Ledum groenlandicum
	low bush-cranberry	44	3	Viburnum edule
	trembling aspen	44	2	Populus tremuloides
herb (6.2)	twinflower	64	0.8	Linnaea borealis
	bunchberry	56	3	Cornus canadensis
	fireweed	48	1	Chamerion angustifolium
	one-sided wintergreen	44	0.9	Orthilia secunda
	wild sarsaparilla	40	3	Aralia nudicaulis
moss & lichen	Schreber's moss	84	7	Pleurozium schreberi
(26.9)	stair-step moss	76	4	Hylocomium splendens
	electric eels	72	0.7	Dicranum polysetum
	other mosses	96	2	
	cup and spike lichens	96	0.8	Cladonia spp.
	green reindeer lichen	76	4	Cladina mitis
	grey reindeer lichen	40	2	Cladina rangiferina

BS13 White birch - black spruce - trembling aspen: Moderately fresh sand

Layer (Richness)	Common name	% constancy	% cover	Latin name	
moss & lichen (26.9)	other lichens	40	1	-	
ground cover	leaf litter	100	52	-	
	woody debris	96	10	-	
	needle litter	68	5	-	
	rock	48	3		

Soil Profile

depth =		
10		
0		
10	Ae ₇	Aeh ₁
21		
30	В	m ₉
42		
53	В	BC ₂
60	1	C ₆ Cg ₁
70	,	R ₂
80		'2

Ecozonal Synonyms

TS6 + TS7	
Boreal Plain	Prairie
NA	NA

Taiga Shield Boreal Shield

Site Features

Soil Great Group - Order	Dystric Brunisols
Son Great Group - Order	Gray Luvisol
	Gleysol
Parent Material	Morainals
I arent Material	Glacio-fluvial
	Eolian:
Moisture Regime	Moderately Dry3
Moisture Regime	Moderately Fresh
	Fresh:
	Dry
	Very Moist
Drainage	Very Rapid
	Rapida
	Well
Slope	(>30)3
	(2-5)2
	(5-9)2
	(0-0.5)1
	(0.5-2)1
	(15-30)1
Topographic Position	Upper Slope:
	Mid-Slopes
	Lower Slope ₂
	Toe Slope
Aspect	South4
	East ₃
	West ₂
	No Aspecti
Surface Texture	Sand ₄
	Loamy Sand2
Effective Texture	Sand ₃
	Loamy Sand ₂

Sandy Loam₂

BS13 White birch - black spruce - trembling aspen: Moderately fresh sand

Site Features

Effective Texture Silty Loam₂

Forest Productivity

,			Tree Species		
	bS	jР	tA	wB	wS
Site Index (m at 50 years)	11.8 ± 1.2	10.5 ± 2.6	12.4 ± 1.9	10.9 ± 1.7	8.2 ± 3.3
Volume (m³/ha)	20.1 ± 10.1	24 ± 16.8	39.2 ± 16.8	22.2 ± 11.5	94.6 ± 159.4
MAI (m³/ha/yr)	0.32 ± 0.15	0.32 ± 0.24	0.6 ± 0.29	0.37 ± 0.2	1.09 ± 1.88
Basal Area (m²/ha)	6.2 ± 2.2	5.6 ± 3.2	8.2 ± 2.9	6.2 ± 2.6	14.8 ± 18.2
Age (years)	70 ± 7	72 ± 17	66 ± 14	73 ± 7	94 ± 20
Height (m)	9.6 ± 0.9	11.1 ± 1.3	11.8 ± 1.7	10 ± 0.9	12.4 ± 5
D.B.H. (cm)	12.2 ± 1.8	16.9 ± 4.5	14.5 ± 2.8	11.2 ± 1.3	21.5 ± 10.9
Density (stems/ha)	533 ± 210	329 ± 305	550 ± 220	541 ± 136	340 ± 242

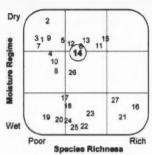
Ecological Interpretation

BS13 ecosites are relatively rich in terms of understory species diversity. This in part is attributable to the range of canopy species and the understory conditions that they produce (light, litterfall). These sites exist as mixedwoods approximately 60 percent of the time and as hardwoods approximately one-third of the time. In the absence of disturbance these ecosites may transition towards the BS8 or BS10 ecosite conditions. Following disturbance by fire, these sites may maintain the characteristics of BS13 or they may migrate toward a BS15 ecosite condition.

BS14

White birch/lingonberry - Labrador tea: Moderately dry sand





Ecosite Description (n = 32)

BS14 ecosites are readily recognized by the pure or nearly pure white birch canopy. This ecosite may also contain black spruce, white spruce, jack pine, or trembling aspen in the canopy but always with white birch as the leading and dominant species. The understory of BS14 ecosites is mostly ericaceous shrubs and scattered green alder and sometimes willow, rose, or pin cherry. A moderate herbaceous layer can usually be observed in combination with patches of Schreber's moss and scattered lichens. The abundance of birch contributes considerably to the high leaf litter cover on the ground.

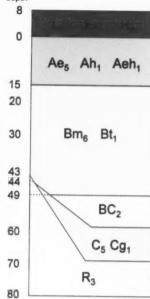
Layer (Richness)	Common name	% constancy	% cover	Latin name
tree (2.8)	white birch	100	46	Betula papyrifera
	black spruce	47	5	Picea mariana
shrub (4.3)	lingonberry	78	11	Vaccinium vitis-idaea
	white birch	66	2	Betula papyrifera
	Labrador tea	63	13	Ledum groenlandicum
	black spruce	59	3	Picea mariana
	blueberry	56	4	Vaccinium myrtilloides
	green alder	44	8	Alnus viridis
herb (7.0)	twinflower	53	0.7	Linnaea borealis
	wild sarsaparilla	47	2	Aralia nudicaulis
	fireweed	47	0.5	Chamerion angustifolium
	northern bastard toadflax	41	1	Geocaulon lividum
moss & lichen	Schreber's moss	78	7	Pleurozium schreberi
(24.2)	electric eels	78	0.5	Dicranum polysetum
	stair-step moss	69	1	Hylocomium splendens
	knight's plume	41	0.5	Ptilium crista-castrensis
	other mosses	78	2	
	cup and spike lichens	84	2	Cladonia spp.
	green reindeer lichen	72	3	Cladina mitis

BS14 White birch/lingonberry - Labrador tea: Moderately dry sand

Layer (Richness)	Common name	% constancy	% cover	Latin name
ground cover	leaf litter	100	49	
	woody debris	97	8	
	needle litter	47	3	-
	rock	41	6	-

Soil Profile

Horizon start depth



Ecozonal Synonyms

Taiga Shield Boreal Shield TS3

Boreal Plain Prairie NA NA

Site Features

Soil Great Group - Order Dystric Brunisol₆ Regosol₂ Sombric Brunisol Folisol Organic Gray Luvisol **Parent Material** Morainal₃ Eolian: Glacio-fluvial2 Organic: Fluvial Moisture Regime Moderately Dry4 Fresh: Moderately Fresh2 Very Fresh Very Moist Drainage Very Rapid₄ Rapid₃ Well Moderately Well Slope $(0-0.5)_2$ $(9-15)_2$ $(15-30)_2$ $(0.5-2)_1$ $(2-5)_1$ $(5-9)_1$ $(>30)_1$ **Topographic Position** Lower Slope₂ Mid-Slope2

Upper Slope₂

Level₂ Depression₁ Crest₁

BS14 White birch/lingonberry - Labrador tea: Moderately dry sand

Site Features

Aspect	No Aspect2
	North ₂
	East ₂
	South ₂
	West ₂
Surface Texture	Sand ₆
	Silty Loam
Effective Texture	Sand ₅
	Sandy Loam ₂
	Sandy Clay Loam
	Silty Loam
	Silty Clay ₁
	Rock

Forest Productivity

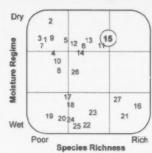
			Tree Species		
	bS	jР	tA	wB	wS
Site Index (m at 50 years)	11.5 ± 1.1	11.2 ± 1.4	9.1 ± 21.6	10.2 ± 1.1	8.9 ± 2.9
Volume (m³/ha)	8.4 ± 6.8	18.1 ± 15.4	13.9 ± 11.8	41.2 ± 23.3	89.5 ± 174.3
MAI (m³/ha/yr)	0.19 ± 0.15	0.28 ± 0.33	0.26 ± 0.27	0.63 ± 0.38	0.81 ± 1.43
Basal Area (m²/ha)	2.7 ± 1.5	4.2 ± 2.5	3.7 ± 2.6	10.8 ± 3.6	15 ± 26.4
Age (years)	67 ± 4	67 ± 6	90 ± 19	77 ± 8	107 ± 24
Height (m)	9.4 ± 1.5	11.8 ± 2.8	10.9 ± 1.8	9.7 ± 1	11.9 ± 5.2
D.B.H. (cm)	11.6 ± 2.8	14.5 ± 2.9	12.2 ± 3.1	10.8 ± 0.9	21.3 ± 15.4
Density (stems/ha)	215 ± 88	283 ± 277	300 ± 232	1021 ± 234	200 ± 133

Ecological Interpretation

These ecosites usually consist of a closed canopy of white birch on rapidly drained soils. In the absence of disturbance this ecosite may transition towards the BS10 ecosite condition. Following disturbance this ecosite may return to its former composition.







Ecosite Description (n = 38)

BS15 ecosites are readily recognized by the pure or nearly pure trembling aspen canopy. White birch can often accompany the aspen but in relatively small quantities. Approximately 10% of BS15 ecosites may include black and/or white spruce, jack pine, or balsam poplar in the overstory. The understory of BS15 ecosites is relatively rich with a variety of both shrub and herb species. Moss and lichen cover is low.

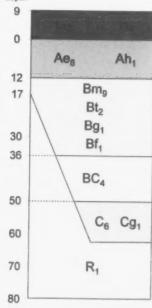
Layer (Richness)	Common name	% constancy	% cover	Latin name
tree (3.0)	trembling aspen	100	47	Populus tremuloides
	white birch	74	12	Betula papyrifera
shrub (5.6)	lingonberry	76	8	Vaccinium vitis-idaea
	blueberry	71	8	Vaccinium myrtilloides
	green alder	68	17	Alnus viridis
	trembling aspen	61	2	Populus tremuloides
	prickly rose	53	2	Rosa acicularis
	low bush-cranberry	53	2	Viburnum edule
	willows	47	3	Salix spp.
	bearberry	42	5	Arctostaphylos uva-urs
herb (10.1)	twinflower	89	2	Linnaea borealis
	bunchberry	74	3	Cornus canadensis
	wild lily-of-the-valley	66	0.7	Maianthemum canadense
	wild sarsaparilla	63	6	Aralia nudicaulis
	fireweed	63	0.9	Chamerion angustifolium
	one-sided wintergreen	47	0.6	Orthilia secunda
	stiff club-moss	45	3	Lycopodium annotinum
	starflower	42	4	Trientalis borealis
moss & lichen	Schreber's moss	89	6	Pleurozium schreberi
(23.9)	stair-step moss	87	3	Hylocomium splendens

BS15 Trembling aspen - white birch/green alder: Moderately fresh loamy sand

Layer (Richness)	Common name	% constancy	% cover	Latin name
moss & lichen	electric eels	84	0.6	Dicranum polysetum
(23.9)	other mosses	84	2	
	cup and spike lichens	89	1	Cladonia spp.
	green reindeer lichen	61	2	Cladina mitis
ground cover	leaf litter	100	54	
	woody debris	100	12	
	needle litter	53	2	*

Soil Profile

Horizon start depth



Ecozonal Synonyms

Taiga Shield Boreal Shield TS5

Boreal Plain Prairie BP6 + BP7 NA

Site Features

Soil Great Group - Order Dystric Brunisols
Gleysols

Parent Material

Morainal

Fluvial

Glacio-fluvial

Glacio-lacustrine

Lacustrine

Moderately Dry

Moderately Fresh

Gray Luvisoli

Moderately Fresh
Fresh
Presh
Presh
Presh
Well
Well
Moderately Well
Slope
(2-5)3
(0-0.5)

(0-0.5)₂ (9-15)₂ (0.5-2)₁ (5-9)₁ (15-30)₁ (>30)₁

Topographic Position Mid-Slopes
Upper Slopes

Level₂
Lower Slope₁
Crest₁

Aspect

West₃
East₂
No Aspect₂
South₂
North₁

BS15 Trembling aspen - white birch/green alder: Moderately fresh loamy sand

Site Features

Surface Texture	Sand ₁
	Loamy Sanda
	Sandy Loam:
	Clay Loam
Effective Texture	Sand ₂
	Loamy Sand ₂
	Sandy Loam:
	Silty Loam ₁
	Silty Clay Loam
	Silty Clay ₁
	Rocks

Forest Productivity

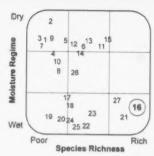
	Tree Species						
	bF	ЬP	bS	jΡ	tA	wB	wS
Site Index (m at 50 years)		9.9 ± 49.2	13.2 ± 3	12.6 ± 2	12.3 ± 1.6	11.7 ± 2.3	11.2 ± 3.6
Volume (m ¹ /ha)		225.9 ± 556.1	17.5 ± 11.6	29.8 ± 15.3	99.1 ± 34.4	11.2 ± 7.4	42.3 ± 59.3
MAI (m¹/ha/yr)		2.5 ± 6.98	0.24 ± 0.18	0.45 ± 0.22	1.48 ± 0.59	0.16 ± 0.09	0.59 ± 0.89
Basal Area (m²/ha)	$0.8 \pm x$	29.6 ± 71.1	4.6 ± 2.5	6.1 ± 2.7	17.9 ±	2.9 ±	6.9 ± 6.9
Age (years)	49 ± 260	93 ± 132	77 ± 18	71 ± 14	75 ± 8	82 ± 11	77 ± 17
Height (m)	7 ± x	15.9± 14.3	10.4 ± 1.6	11.6 ± 2.7	12.6 ± 1	11 ± 2.9	12 ± 4.5
D.B.H. (cm)	10,2 ± x	19.2 ± 19.3	15.6 ± 5.1	17.4 ± 3.7	12.7 ± 1	12.2 ± 2.6	16.5 ± 6.3
Density (stems/ha)	100 ± x	450 ± 718	243 ± 140	270 ± 147	1329 ± 266	275 ± 133	233 ± 86

Ecological Interpretation

The BS15 ecosite is among the richest of ecosites in the Boreal Shield ecozone. The relatively thick canopy of trembling aspen maintains light and moisture levels which support numerous shrubs and herbs. It is not uncommon to find either or both black and white spruce in the understory. In the absence of fire these ecosites may transition toward the BS11 and BS12 ecosite conditions. Following disturbance this ecosite is likely to return to its former composition due to rapid suckering of the trembling aspen.

BS16 Black spruce/balsam poplar/river alder swamp: Very moist mesic organic





Ecosite Description (n = 4)

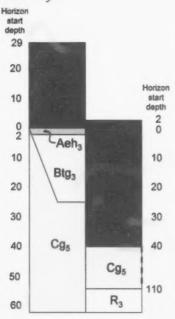
BS16 ecosites can occur with nearly pure black spruce or pure balsam poplar overstories, both of which may have scattered white birch present. River alder, willows and low bush-cranberry are common in the understory as are sedges and a variety of moisture loving or moisture tolerant herbaceous species. While Sphagnum will be the dominant moss, feathermoss is also frequently encountered.

Layer (Richness)	Common name	% constancy	% cover	Latin name
tree (3.8)	white birch	75	17	Betula papyrifera
	black spruce	50	61	Picea mariana
	balsam poplar	50	54	Populus balsamifera
	white spruce	50	5	Picea glauca
shrub (7.0)	river alder	100	17	Alnus incana
	willows	100	9	Salix spp.
	low bush-cranberry	75	5	Viburnum edule
	Labrador tea	75	4	Ledum groenlandicum
	red currant	75	2	Ribes triste
	white birch	50	6	Betula papyrifera
	lingonberry	50	2	Vaccinium vitis-idaea
	white spruce	50	0.6	Picea glauca
herb (14.3)	sedges	75	10	Carex spp.
	bunchberry	75	7	Cornus canadensis
	bluejoint grass	75	5	Calamagrostis canadensis
	dewberry	75	3	Rubus pubescens
	woodland horsetail	75	3	Equisetum sylvaticum
	twinflower	75	0.3	Linnaea borealis
	common horsetail	50	4	Equisetum arvense
	bishop's cap	50	3	Mitella nuda
	palmate-leaved coltsfoot	50	2	Petasites palmatus
	starflower	50	2	Trientalis borealis

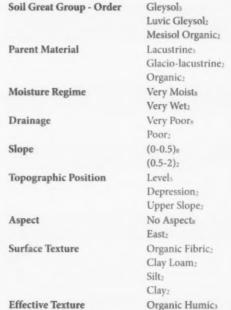
BS16 Black spruce/balsam poplar/river alder swamp: Very moist mesic organic

Layer (Richness)	Common name	% constancy	% cover	Latin name
herb (14.3)	fireweed	50	2	Chamerion angustifolium
	tall lungwort	50	1	Mertensia paniculata
	kidney-leaved violet	50	1	Viola renifolia
	dwarf scouring-rush	50	0.4	Equisetum scirpoides
	Lapland buttercup	50	0.3	Ranunculus lapponicus
moss & lichen	Schreber's moss	100	13	Pleurozium schreberi
(23.0)	stair-step moss	100	6	Hylocomium splendens
(25.0)	Dicranum mosses	75	0.7	Dicranum spp.
	Sphagnum mosses	50	25	Sphagnum spp.
	other mosses	100	4	
	cup and spike lichens	75	0.3	Cladonia spp.
ground cover	leaf litter	100	21	*
-	woody debris	100	8	
	needle litter	75	0.3	

Soil Profile



Site Features



Organic Mesics

BS16 Black spruce/balsam poplar/river alder swamp: Very moist mesic organic

Ecozonal Synonyms Site Features

Taiga Shield Boreal Shield Effective Texture Silts
TS8 - Silty Clays

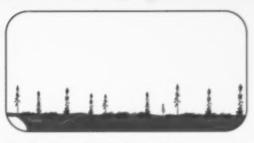
Boreal Plain Prairie BP18 NA

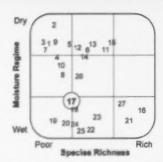
Forest Productivity

	Tree Species						
	bF	bP	bS	tL	wB		
Site Index (m at 50 years)	$6.5 \pm x$	16.1 ± 46.4	11.2 ± 48	$12.9 \pm x$	$18.9 \pm x$		
Volume (m³/ha)	$14.5 \pm x$	152.1 ± 80.7	137.4 ± 695.8	$14.8 \pm x$	5.4 ± 68		
MAI (m³/ha/yr)	$0.12 \pm x$	2.08 ± 12.23	1.45 ± 2.47	$0.22 \pm x$	$0.09 \pm x$		
Basal Area (m²/ha)	$2.8 \pm x$	24.8 ± 23.9	26 ± 17.3	$2.8 \pm x$	2.5 ± 9.4		
Age (years)	94 ± 6	91 ± 72	98 ± 77	67 ± 165	38 ± 32		
Height (m)	$13.3 \pm x$	17.9 ± 16.9	13.4 ± 43.6	13.3 ± x	8.7 ± 5.7		
D.B.H. (cm)	$12.5 \pm x$	24 ± 90	15.2 ± 63	$10.9 \pm x$	14.4 ± 74.1		
Density (stems/ha)	$200 \pm x$	700 ± 5082	1850 ± 13342	$300 \pm x$	200 ± 1271		

Ecological Interpretation

These ecosites are uncommon in the Boreal Shield ecozone. They are associated with transition positions on the landscape between wetlands and uplands. It is common for these sites to have abundant and often flowing water. Due to their landscape position and adequate drainage, they are among the richest of the ecosites in the Boreal Shield ecozone as they support both upland and wetland species. They are usually associated with gleysolic soils. These ecosites are relatively stable on the landscape and may return to their former composition following disturbance or stay in that condition in the absence of disturbance although with an increasing shrub cover as openings increase in the canopy.





Ecosite Description (n = 44)

BS17 ecosites consistently have a somewhat open canopy of all-aged black spruce. Tamarack may also occur on about 20% of the sites but with relatively little cover. The understory is largely ericaceous shrubs (mostly Labrador tea) and the ground cover is represented by an even distribution of *Sphagnum* and Schreber's moss.

Layer (Richness)	Common name	% constancy	% cover	Latin name
tree (1.7)	black spruce	100	30	Picea mariana
shrub (5.9)	Labrador tea	100	30	Ledum groenlandicum
	black spruce	98	7	Picea mariana
	lingonberry	95	5	Vaccinium vitis-idaea
	small bog cranberry	82	1	Vaccinium oxycoccos
	northern bog-laurel	68	0.9	Kalmia polifolia
	leatherleaf	61	7	Chamaedaphne calyculata
	blueberry	41	5	Vaccinium myrtilloides
	willows	41	2	Salix spp.
herb (3.5)	cloudberry	82	6	Rubus chamaemorus
	woodland horsetail	45	3	Equisetum sylvaticum
moss & lichen	Schreber's moss	95	26	Pleurozium schreberi
(26.0)	Sphagnum mosses	91	29	Sphagnum spp.
	Dicranum moss	61	1	Dicranum spp.
	stair-step moss	41	1	Hylocomium splendens
	other mosses	68	3	-
	green reindeer lichen	91	9	Cladina mitis
	cup and spike lichens	84	3	Cladonia spp.
	grey reindeer lichen	66	4	Cladina rangiferina
	northern reindeer lichen	48	4	Cladina stellaris
	other lichens	45	1	

BS17 Black spruce treed bog: Very moist mesic organic

Layer	(Richness)	Common name	% constancy	% cover	Latin name
groun	d cover	woody debris	95	6	
		leaf litter	93	4	-
		needle litter	82	2	-
Soil	Profile		Site Features	;	
Horizon start depth 25 20			Soil Great Grou	p - Order	Gleysol ₄ Mesisol Organic ₂ Fibrisol Organic ₁ Dystric Brunisol ₁
10		Horizon start depth 0	Parent Material		Organic ₄ Lacustrine ₂ Morainal ₂ Fluvial ₁
12	Ae ₂ Ah ₁		Moisture Regim	e	Very Moists Moderately Wet ₂ Wet ₂
24	Bg ₁ Bm ₁		Drainage		Very Poors Poor ₂ Imperfect ₂
30	BC ₁		Slope		(0-0.5) ₇ (0.5-2) ₂
40	Cg ₇ C ₁		Topographic Po	sition	Level ₆ Toe Slope ₂ Depression ₁
54		77	Aspect		No Aspect ₇

Surface Texture

Ecozonal Synonyms

BP19

Taiga Shield	Boreal Shield		
TS9			
Roreal Dlain	Drairio		

Cg7 C1

NA

	40.900.000.0
	Loamy Sand
Effective Texture	Organic Mesic
	Organic Fibric
	Organic Humi
	Sand ₁

North₁ East₁

West

Organic Fibric₄ Sand₃

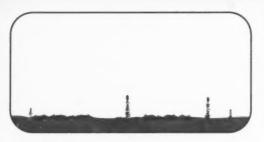
BS17 Black spruce treed bog: Very moist mesic organic

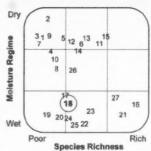
Forest Productivity	Tree Species				
	bP	bS	jР	tL	wB
Site Index (m at 50 years)		6.5 ± 0.8	9.4 ± 2.6	8.5 ± 2.7	$9.2 \pm x$
Volume (m³/ha)	$3.3 \pm x$	10.6 ± 4.8	2 ± 4.5		3.9 ± 16.9
MAI (m³/ha/yr)	$0.06 \pm x$	0.17 ± 0.06	$0.04 \pm x$		$0.17 \pm x$
Basal Area (m²/ha)	$1.3 \pm x$	6.3 ± 1.6	2.1 ± 1.8	0.7 ± 0.4	2.1 ± 4.1
Age (years)	-	107 ± 8	56 ± 7	64 ± 14	49 ± 13
Height (m)	$8.2 \pm x$	7.7 ± 0.4	7.4 ± 1.4	7.8 ± 1.2	7.2 ± 4.7
D.B.H. (cm)	$12.9 \pm x$	9.7 ± 0.4	9.7 ± 2.9	9.2 ± 2.9	10 ± 4.1
Density (stems/ha)	$100 \pm x$	803 ± 198	350 ± 305	$100 \pm x$	267 ± 297

Ecological Interpretation

Treed bogs are relatively common on the Boreal Shield. The black spruce on these sites usually represents all ages as the *Sphagnum* moss on the site encourages vegetative reproduction by branch layering. *Sphagnum* is also a suitable seed bed for spruce germination provided that the moss isn't Girgensohn's or another fast-growing peat moss which can outcompete and smother black spruce germinants. Despite the wet conditions, black spruce can remain free from rot for long periods. In the absence of disturbance these sites will likely remain as a treed bog. Following disturbance these sites may more closely resemble BS18 or BS20.





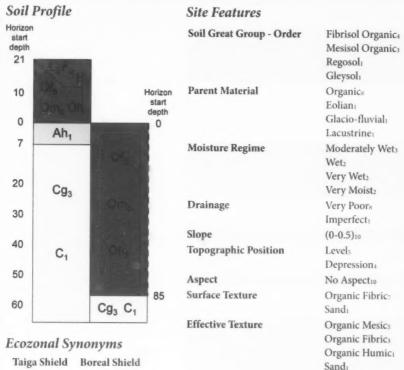


Ecosite Description (n = 33)

BS18 ecosites are dominated by a variety of ericaceous shrubs, notably leatherleaf and Labrador tea. Occasionally black spruce and tamarack, or even the odd jack pine, may occur in tree form (*i.e.* >2 m), but the cover is usually low (*i.e.*, <10%). Aside from the expected absence of trees, shrubby bogs tend to have a greater proportion of *Sphagnum* moss than would be found on treed bogs (BS17).

Layer (Richness)	Common name	% constancy	% cover	Latin name
tree (1.8)	black spruce	82	5	Picea mariana
shrub (5.6)	leatherleaf	88	15	Chamaedaphne calyculata
	black spruce	88	10	Picea mariana
	northern bog-laurel	88	3	Kalmia polifolia
	small bog cranberry	88	1	Vaccinium oxycoccos
	Labrador tea	82	24	Ledum groenlandicum
	lingonberry	73	1	Vaccinium vitis-idaea
	northern Labrador tea	33	5	Ledum palustre
herb (4.1)	cloudberry	70	3	Rubus chamaemorus
	three-leaved false Solomon's-seal	48	3	Maianthemum trifolium
	round-leaved sundew	42	0.5	Drosera rotundifolia
moss & lichen	Sphagnum mosses	85	59	Sphagnum spp.
(19.4)	Schreber's moss	45	3	Pleurozium schreberi
	other mosses	67	8	-
	cup and spike lichens	79	0.7	Cladonia spp.
	green reindeer lichen	76	8	Cladina mitis
ground cover	leaf litter	91	6	
	woody debris	88	3	•
	needle litter	67	2	

Labrador tea shrubby bog: Moderately wet mesic organic



Taiga Shield **Boreal Shield** TS10

Boreal Plain Prairie **BP20**

Forest Productivity

Tree Species bs jP Site Index (m at 50 years) 7.7 ± 2 10 ± 4.7 Volume (m³/ha) 1.1 ± 1.9 MAI (m3/ha/yr) 0.07 ± 0.28 Basal Area (m²/ha) 2.4 ± 5.8 2.4 ± 5.8 Age (years) 79 + 1339 + 12Height (m) 7.4 ± 1.4 6.8 ± 1.7 D.B.H. (cm) 8.3 ± 1.6 8.3 ± 1.6 Density (stems/ha) 163 ± 99 $200 \pm x$

Ecological Interpretation

Shrubby bogs are commonly encountered in the Boreal Shield ecozone. Being wetter than treed bogs, they tend to be associated with Fibrisol and Mesisol organic soils. Like the other forms of bogs, most of the moisture they receive is the result of precipitation. Shrubby bogs, unlike treed bogs, are more likely to be found on level sites. Since the water table associated with shrubby bogs is usually below the site surface, they are still susceptible to disturbance from fire. Fires with a long enough duration or intensity may kill shrub species and the bog may transition into an open (BS20) or graminoid dominated (BS19) condition.

BS19 Graminoid bog: Very wet humic organic



Dry 2 31 9 5 12 6 3 11 5 7 14 14 10 8 26 17 16 23 21 25 22 Poor Rich Species Richness

Ecosite Description (n = 2)

BS19 ecosites are dominated by sedges and other graminoids in association with *Sphagnum* moss. They typically lack any substantial tree or shrub cover and can occur on mineral or organic substrates.

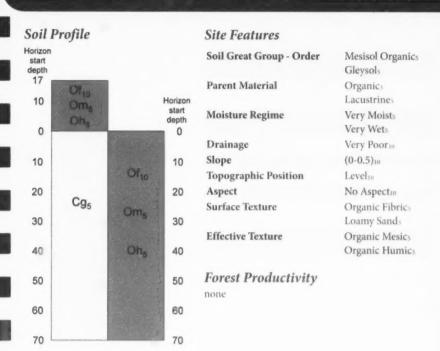
Characteristic Species

Layer (Richness)	Common name	% constancy	% cover	Latin name
tree (0.5)				
shrub (4.0)	leatherleaf	100	3	Chamaedaphne calyculata
	small bog cranberry	100	0.5	Vaccinium oxycoccos
	northern bog-laurel	50	3	Kalmia polifolia
	dwarf bog-rosemary	50	3	Andromeda polifolia
	northern Labrador tea	50	2	Ledum palustre
	black spruce	50	0.5	Picea mariana
	tamarack	50	0.5	Larix laricina
	willows	50	0.3	Salix spp.
herb (3.0)	sedges	50	63	Carex spp.
	round-leaved sundew	50	0.3	Drosera rotundifolia
	pitcher-plant	50	0.1	Sarracenia purpurea
	marsh speedwell	50	0.1	Veronica scutellata
moss & lichen (1.5)	Sphagnum mosses	100	54	Sphagnum spp.
ground cover	leaf litter	100	19	
	exposed soil	50	1	

Ecozonal Synonyms

Taiga Shield	Boreal Shield	Boreal Plain	Prairie
TS11		BP21	NA

BS19 Graminoid bog: Very wet humic organic

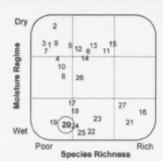


Ecological Interpretation

Graminoid bogs are infrequently encountered (as indicated by the low sample size). While similar to sedge fens they lack fen species and standing water is not readily seen. Following disturbance by either fire or prolonged flooding, these sites will typically return to their former condition. However, they may revert to an open bog condition until the grasses become reestablished.

BS20 Open bog: Moderately wet fibric organic





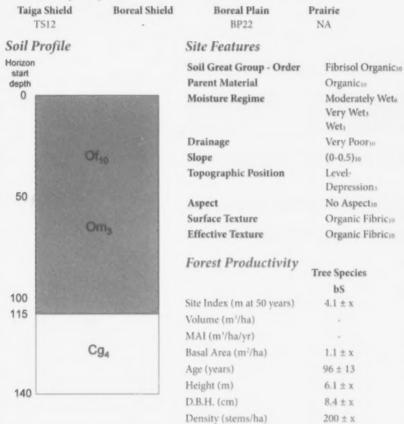
Ecosite Description (n = 7)

BS20 ecosites are dominated by *Sphagnum* moss (and a low cover of scattered Schreber's moss) and have low cover values of trees, shrubs and herbs. They are typically associated with organic soils.

Layer (Richness)	Common name	% constancy	% cover	Latin name
tree (1.1)	black spruce	86	6	Picea mariana
shrub (5.6)	black spruce	100	3	Picea mariana
	small bog cranberry	100	2	Vaccinium oxycoccos
	northern bog-laurel	100	1	Kalmia polifolia
	leatherleaf	86	7	Chamaedaphne calyculata
	Labrador tea	86	3	Ledum groenlandicum
	dwarf bog-rosemary	86	0.8	Andromeda polifolia
	northern Labrador tea	57	1	Ledum palustre
	lingonberry	43	0.8	Vaccinium vitis-idaea
herb (3.3)	cloudberry	100	2	Rubus chamaemorus
	round-leaved sundew	86	0.5	Drosera rotundifolia
	sedges	71	2	Carex spp.
moss & lichen	Sphagnum mosses	86	72	Sphagnum spp.
(21.7)	Schreber's moss	57	12	Pleurozium schreberi
	wavy dicranum	43	0.4	Dicranum undulatum
	other mosses	100	0.5	
	cup and spike lichens	100	3	Cladonia spp.
	green reindeer lichen	86	2	Cladina mitis
	grey reindeer lichen	71	1	Cladina rangiferina
	northern reindeer lichen	57	0.4	Cladina stellaris
ground cover	leaf litter	100	4	*
	woody debris	100	1	+
	needle litter	86	0.4	*

BS20 Open bog: Moderately wet fibric organic

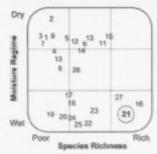
Ecozonal Synonyms



Ecological Interpretation

Open *Sphagnum* bogs are infrequently encountered (as indicated by the low sample size) in the Boreal Shield ecozone. They tend to occur within treed or shrubby bogs (BS17 and BS18 respectively) which is why they more closely resemble those ecosites rather than graminoid bogs (BS19). Open bogs also tend to be wetter then their surrounding conditions. Over time, these ecosites could be expected to become a shrubby or treed bog.





Ecosite Description (n = 2)

Tamarack is the predominant tree species on BS21 ecosites, although black spruce and occasionally white birch may occur in lesser amounts. Many of the shrub and herb species encountered in fens are more commonly associated with moister conditions than that which would be found in bogs. It is not uncommon for treed fens to have a water table at or near the surface. Treed fens are usually associated with an organic substrate but mineral soil substrates may also be encountered.

Characteristic Species

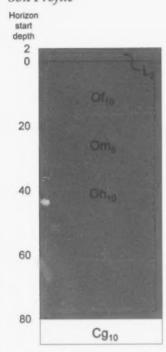
Layer (Richness)	Common name	% constancy	% cover	Latin name
tree (2.5)	tamarack	100	21	Larix laricina
	black spruce	100	11	Picea mariana
	white birch	50	10	Betula papyrifera
shrub (7.5)	willows	100	13	Salix spp.
	river alder	50	28	Alnus incana
	Labrador tea	50	10	Ledum groenlandicum
	leatherleaf	50	10	Chamaedaphne calyculata
	dwarf birch	50	7	Betula pumila
	black spruce	50	3	Picea mariana
	alder-leaved	50	2	Rhamnus alnifolia
	buckthorn			
	fly honeysuckle	50	0.5	Lonicera villosa
	currant species	50	0.5	Ribes spp.
	small bog cranberry	50	0.5	Vaccinium oxycoccos
	crowberry	50	0.5	Empetrum nigrum
	lingonberry	50	0.3	Vaccinium vitis-idaea
	northern bog-laurel	50	0.3	Kalmia polifolia
	sweet gale	50	0.3	Myrica gale
	prickly rose	50	0.1	Rosa acicularis
herb (12.5)	three-leaved false Solomon's-seal	100	3	Maianthemum trifolium
	grasses	100	2	Graminoid spp.
	one-sided wintergreer	100	0.4	Orthilia secunda

BS21 Tamarack treed fen: Wet fibric organic

Layer (Richness)	Common name	% constancy	% cover	Latin name
herb (12.5)	water sedge	50	24	Carex aquatilis
	rough cinquefoil	50	10	Potentilla norvegica
	fowl manna grass	50	10	Glyceria striata
	bluejoint grass	50	6	Calamagrostis canadensis
	yellow marsh-marigold	50	5	Caltha palustris
	marsh cinquefoil	50	5	Comarum palustre
	bog violet	50	3	Viola nephrophylla
	bunchberry	50	1	Cornus canadensis
	fireweed	50	1	Chamerion angustifolium
	common horsetail	50	1	Equisetum arvense
	pink wintergreen	50	1	Pyrola asarifolia
	cloudberry	50	1	Rubus chamaemorus
	bog sedge	50	1	Carex magellanica
	wild sarsaparilla	50	0.5	Aralia nudicaulis
	sedges	50	0.5	Carex spp.
	twinflower	50	0.5	Linnaea borealis
	starflower	50	0.5	Trientalis borealis
	Indian-pipe	50	0.3	Monotropa uniflora
	fringed aster	50	0.1	Symphyotrichum ciliolatus
moss & lichen	Sphagnum mosses	50	41	Sphagnum spp.
(8.5)	Schreber's moss	50	2	Pleurozium schreberi
	other mosses	100	4	
	cup and spike lichers	50	0.3	Cladonia spp.
ground cover	leaf litter	100	21	
	woody debris	100	3	
	needle litter	50	3	

Taiga Shield	Boreal Shield	Boreal Plain	Prairie
TS13		BP23	NA

Soil Profile



Site Features

Soil Great Group - Order	Mesisol Organica Fibrisol Organica
Parent Material	Organiciii
Moisture Regime	Moderately Wets Wets
Drainage	Very Poorm
Slope	(0-0.5)10
Topographic Position	Level ₁₀
Aspect	No Aspect 10
Surface Texture	Organic Fibric ₁₀
Effective Texture	Organic Fibrics
	Organic Humics

Forest Prod	uctivity	Tree Species	
	bS	ŧI.	wB
Site Index (m at 50 years)	6.8 ± 14.9	9.1 ± x	-
Volume (m ³ /ha)	4.1 ± 52.5	27.9 ± x	-
MAI (m³/ha/yr)	0.09 ± x	$0.29 \pm x$	
Basal Area (m²/ha)	1.2 ± 9.3	6.1 ± x	0.6 ± x
Age (years)	125 ± 56	79 ± 44	-
Height (m)	8.8 ± 34.9	12 ± x	$7.5 \pm x$
D.B.H. (cm)	11.9 ± 50.2	$16 \pm x$	$8.7 \pm x$
Density (stems/ha)	1001 ± x	$300 \pm x$	100 ± x

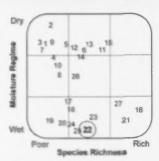
Ecological Interpretation

Tamarack treed fens are not a common wetland (as indicated by the low sample size) in the Boreal Shield ecozone. They tend to occur in association with shrubby fens (BS22 and BS23) and resemble ribbons in the landscape along drainage ways. Following disturbance, these ecosites could be expected to become a shrubby fen (BS22). In the absence of disturbance these ecosites will likely remain in their current condition.



BS22 Leatherleaf shrubby poor fen: Very wet fibric organic





Ecosite Description (n = 21)

Leatherleaf, willow, and dwarf birch are the dominant shrub species on this ecosite; however, scattered tamarack or black spruce may also occur. Sedges are the dominant species in the herbaceous layer and *Sphagnum* mosses are abundant. Shrubby poor fens frequently have a water table that is at or near the surface. The substrate for these ecosites is usually organic although a mineral substrate is also possible.

Characteristic Species

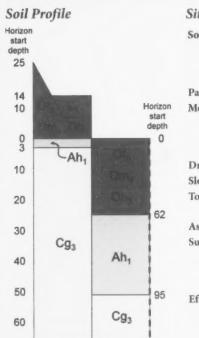
Layer (Richness)	Common name	% constancy	% cover	Latin name
tree (2.0)	tamarack	52	3	Larix laricina
	black spruce	52	1	Picea mariana
shrub (5.9)	leatherleaf	86	16	Chamaedaphne calyculata
	small bog cranberry	81	2	Vaccinium oxycoccos
	willows	76	12	Salix spp.
	black spruce	71	2	Picca mariana
	northern bog-laurel	67	2	Kalmia polifolia
	Labrador tea	62	3	Ledum groenlandicum
	dwarf birch	48	12	Betula pumila
	tamarack	48	5	Larix laricina
herb (7.0)	three-leaved false Solomon's-seal	81	5	Maianthemum trifolium
	sedges	76	15	Carex spp.
	marsh cinquefoil	52	2	Comarum palustre
moss & lichen	Sphagnum mosses	90	61	Sphagnum spp.
(14.1)	other mosses	71	9	
ground cover	leaf litter	90	8	
	woody debris	76	1	
	water	52	8	

Ecozonal Synonyms

Taiga Shield	Boreal Shield	Boreal Plain	Prairie
TS14		BP24	NA

BS22

Leatherleaf shrubby poor fen: Very wet fibric organic



Site Features

Site Features	
Soil Great Group - Order	Fibrisol Organica Mesisol Organica Humisol Organica Gicysola
Parent Material	Organic
Moisture Regime	Very Wete Wet Moderately Wett Very Moist
Drainage	Very Poor ₁₀
Slope	(0-0.5)10
Topographic Position	Level ₆ Depression ₄
Aspect	No Aspectio
Surface Texture	Organic Fibrica Organic Humica Sanda Loama
Effective Texture	Organic Fibric ₆ Organic Humic ₂ Organic Mesic ₁

Forest Productivity

Forest Productivity	Trac	Tree Species		
	bS	tL		
Site Index (m at 50 years)	9.2 ± x	7.2 ± 21.9		
Volume (m³/ha)		1.4 ± 18.3		
MAI (m³/ha/yr)		$0.03 \pm x$		
Basal Area (m²/ha)	$0.6 \pm x$	2.6 ± 23.8		
Age (years)	82 ± 114	79 ± 50		
Height (m)	$7.3 \pm x$	7.1 ± 2.2		
D.B.H. (cm)	$8.8 \pm x$	9.8 ± 1.3		
Density (stems/ha)	$100 \pm x$	350 ± 3177		

Ecological Interpretation

Shrubby fens tend to be more common on the Boreal Shield than the Taiga Shield. Shrubby poor fens are sometimes associated with Tamarack treed fens (BS21). While the characteristic species table for the shrubby poor fen (BS22) appears to be larger (richer) than the willow shrubby rich fen (BS23), the species richness values are greater for BS23 particularly in the herbaceous layer.

BS23 Willow shrubby rich fen: Wet fibric organic



Dry 2 31 9 5 12 63 115 7 16 10 8 26 17 18 27 16 19 20 24 23 21 Poor Species Richness Rich

Ecosite Description (n = 11)

BS23 ecosites have characteristically high cover values of willow. The typical willows associated with this site are usually pussy willow and flat-leaved willow. Other shrubs that may be found on the site include river alder, skunk and wild red current, dwarf birch, red-osier dogwood, and sweet gale. Grasses tend to be more common on the BS23 ecosite than sedges. Shrubby rich fens also tend to have more open water at the surface than shrubby poor fens (BS22). Shrubby rich fens are more commonly associated with a mineral soil substrate but will also occur on an organic substrate.

Characteristic Species

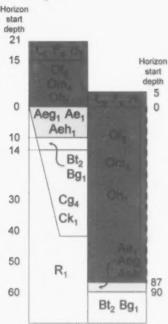
Layer (Richness)	Common name	% constancy	% cover	Latin name
tree (1.5)				
shrub (3.5)	willows	73	28	Salix spp.
herb (11.0)	bluejoint grass	73	17	Calamagrostis canadensis
	marsh cinquefoil	73	2	Comarum palustre
	sedges	64	13	Carex spp.
	marsh violet	45	1	Viola palustris
	small bedstraw	45	0.4	Galium trifidum
moss & lichen	Sphagnum mosses	64	13	Sphagnum spp.
(14.5)	other mosses	82	16	
ground cover	leaf litter	100	30	
	woody debris	64	6	*
	water	45	32	

Ecozonal Synonyms

Taiga Shield	Boreal Shield	Boreal Plain	Prairie
NA	-	BP25	NA

Willow shrubby rich fen: Wet fibric organic **BS23**

Soil Profile Horizon



Site Features	
Soil Great Group - Order	Gleysol
	Fibrisol Organica
	Mesisol Organic2
	Gray Luvisol2
	Humisol Organic
	Non-soil
Parent Material	Organics .
	Fluvial
	Glacio-lacustrine
	Lacustrine ₁
	Morainal

Moisture Regime	Wets
	Very Moists
	Moderately Moist2
	Very Wet2

	Licon
Drainage	Very Poor
	Poor ₁
	Imperfect ₁
	Moderately Wells
	Vary Danid

	Very Rapida	
Slope	(0-0.5)8	
	(0.5-2)	
	(5-9)1	
Topographic Position	Levels	

robolishing rounds	270 - 640
	Toe Slope
	Upper Slope
Acmost	No Aspest

	North:
Surface Texture	Organic Fibrics
	Clay Loam
	Silty Sand

Silty Sandi
Silty Loam:
Silty Clay Loam:
Rock ₁

Silty Sandi

Effective Texture	Organic Fibrica
	Organic Mesics
	Organic Humic
	Clayı
	Silty Clay Loam

BS23 Willow shrubby rich fen: Wet fibric organic

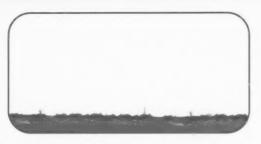
Forest Productivity		Tree Species	
	bP	tL	wB
Site Index (m at 50 years)	0.5	$19.2 \pm x$	11.5 ± 1.6
Volume (m³/ha)	-	140	2.5 ± 32.1
MAI (m³/ha/yr)		-	$0.09 \pm x$
Basal Area (m²/ha)	$0.8 \pm x$	$0.5 \pm x$	2.6 ± 1.4
Age (years)	$105 \pm x$	20 ± 32	60 ± 8
Height (m)	$8.4 \pm x$	$4.9 \pm x$	6.6 ± 6
D.B.H. (cm)	$9.9 \pm x$	$8.3 \pm x$	15.3 ±30.2
Density (stems/ha)	100 ± x	100 ± x	150 ± 635

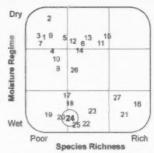
Ecological Interpretation

Willow shrubby rich fens differ considerably from leatherleaf shrubby poor fens (BS22). Rich fen ecosites often occur adjacent to streams and lakes. They may also occur as part of a swale or draw. In the absence of disturbance these ecosites are self-sustaining. Following disturbance they will likely return to their former composition or may more closely resemble an open fen (BS25) condition.

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Ecosite Description (n = 10)

Graminoid or sedge fens often have various sedge species (e.g., mud sedge and water sedge) and sometimes marsh reed grasses. They generally lack trees and shrubs. Sphagnum moss is the most common moss found in association with these sites. Graminoid fens usually have water at or near the surface, which accounts for the presence of bladderwort, a carnivorous aquatic plant. While graminoid fen ecosites are usually associated with organic soils, they may also occur with mineral substrates.

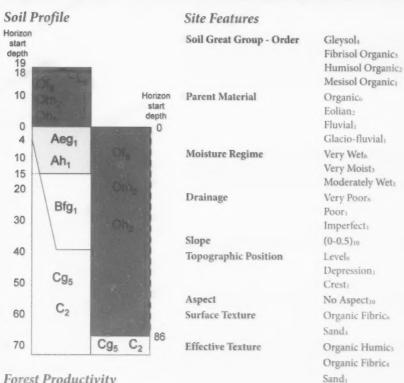
Characteristic Species

Layer (Richness)	Common name	% constancy	% cover	Latin name
tree (0.8)				
shrub (3.1)	willows	60	8	Salix spp.
	leatherleaf	50	1	Chamaedaphne calyculata
	small bog cranberry	50	0.6	Vaccinium oxycoccos
herb (7.6)	sedges	60	23	Carex spp.
	marsh cinquefoil	50	5	Comarum palustre
moss & lichen	Sphagnum mosses	70	24	Sphagnum spp.
(8.2)	other mosses	60	15	
ground cover	leaf litter	80	30	-
	open water	40	24	

Ecozonal Synonyms

Taiga Shield	Boreal Shield	Boreal Plain	Prairie
TS15	-	BP26	PR9

Graminoid fen: Very wet humic organic **BS24**



Forest Productivity

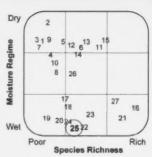
none

Ecological Interpretation

Graminoid fens are occasionally found across the Boreal Shield. They are often in close proximity to lake shorelines. The high water table on these sites can provide the proper conditions for submergent plants such as the flat-leaved bladderwort. Following disturbance, such as iceaction, these ecosites could be expected to return to graminoid fens.

BS25 Open fen: Wet mesic organic





Ecosite Description (n = 5)

Open fens are conspicuous by the lack of any dominant form of vegetation with the exception of mosses. It is not uncommon for open fens to exhibit many of the vegetation species found in adjacent ecosites. While the diversity of species may be relatively high, their cover values are low. In terms of substrate, open fens can either have a mineral or organic substrate.

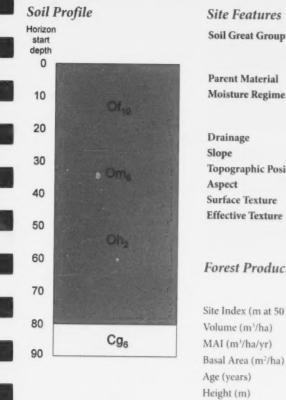
Characteristic Species

Layer (Richness)	Common name	% constancy	% cover	Latin name
tree (1.2)				
shrub (5.0)	dwarf bog-rosemary	100	3	Andromeda polifolia
	leatherleaf	100	2	Chamaedaphne calyculata
	small bog cranberry	100	0.9	Vaccinium oxycoccos
	northern bog-laurel	80	0.3	Kalmia polifolia
	black spruce	60	3	Picea mariana
	tamarack	40	0.4	Larix laricina
herb (6.6)	sedges	80	5	Carex spp.
	Scheuchzeria	80	4	Scheuchzeria palustris
	buck-bean	80	2	Menyanthes trifoliata
	round-leaved sundew	80	0.4	Drosera rotundifolia
	cloudberry	40	1	Rubus chamaemorus
	three-leaved false Solomon's-seal	40	0.9	Maianthemum trifolium
moss & lichen	Sphagnum mosses	100	35	Sphagnum spp.
(8.2)	other mosses	40	0.5	
ground cover	leaf litter	100	13	
	open water	60	60	
	woody debris	60	0.8	
	needle litter	40	1	*

Ecozonal Synonyms

Taiga Shield	Boreal Shield	Boreal Plain	Prairie
TS16		BP27	NA

BS25 Open fen: . Wet mesic organic



Soil Great Group - Order	Mesisol Organica Humisol Organica Fibrisol Organica
Parent Material	Organic ₁₀
Moisture Regime	Wet ₄
	Very Wet4
	Moderately Wet2
Drainage	Very Poor ₁₀
Slope	(0-0.5)10
Topographic Position	Level ₁₀
Aspect	No Aspect ₁₀
Surface Texture	Organic Fibricia
Effective Texture	Organic Mesic
	Organic Humic ₂
	Organic Fibrica

Forest Productivity

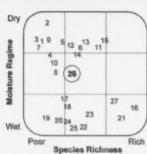
Tree S	pecies
bS	tL
$5.3 \pm x$	$4.4 \pm x$
$2.8 \pm x$	4.8 ± x
$0.02 \pm x$	$0.03 \pm x$
$2.3 \pm x$	$1.5 \pm x$
149 ± 32	187 ± 19
$7.5 \pm x$	$8.9 \pm x$
$9.9 \pm x$	$13.8 \pm x$
$300 \pm x$	$100 \pm x$
	bS $5.3 \pm x$ $2.8 \pm x$ $0.02 \pm x$ $2.3 \pm x$ 149 ± 32 $7.5 \pm x$ $9.9 \pm x$

Ecological Interpretation

While open fens appear uncommon across the Boreal Shield ecozone (as indicated by low sample size numbers) it is more a function of their existence as small pockets nested within other fen ecosites. Rarely do open fens exist as large expanses. Following disturbance these ecosites could be expected to return to open fens, but over time it is likely that they would become part of the adjacent fen ecosite.

BS26 Rush sandy shore: Very moist sand





Ecosite Description (n = 8)

BS26 ecosites are characterized by having a relatively low cover of rushes, grasses, and sedges and little else. The ground cover is mostly exposed soil; usually just sand.

Characteristic Species

Layer (Richness)	Common name	% constancy	% cover	Latin name
tree (0.5)				
shrub (1.6)				
herb (10.4)	wire rush	100	5	Juncus arcticus
	Mackenzie hair grass	63	2	Deschampsia mackenzieana
	alpine rush	50	3	Juncus alpinus
	narrow reed grass	50	0.9	Calamagrostis stricta
	water sedge	50	0.7	Carex aquatilis
	red fescue	50	0.4	Festuca rubra
	northern brome	50	0.3	Bromus pumpellianus
	striate knotweed	50	0.3	Polygonum achoreum
moss & lichen (2.4)				
ground cover	soil	62	74	
	leaf litter	50	16	

Ecozonal Synonyms

Taiga Shield	Boreal Shield	Boreal Plain	Prairie
NA	*	NA	NA

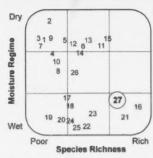
BS26 Rush sandy shore: Very moist sand

Soil Profile		Site Features	
Horizon start depth		Soil Great Group - Order	Gleysols Regosols
0		Parent Material	Eolian ₈ Fluvial ₁ Glacio-fluvial ₁
10	,	Moisture Regime	Very Moists Moderately Freshs
20	C ₉	Drainage	Rapids Very Poor4
30			Poor ₁
40		Slope	$(0-0.5)_6$ $(0.5-2)_2$ $(2-5)_1$
50		Topographic Position	Level ₉ Toe Slope ₁
60	Cg ₆	Aspect	No Aspect ₆
		Surface Texture	Sandio
70		Effective Texture	Sand ₁₀
80		Forest Productivity	
90			

Ecological Interpretation

Rush sandy shores are almost always narrow linear features adjacent to lakes or ponds. This particular ecosite was defined based on data almost exclusively from the Athabasca Dunes ecodistrict.





Ecosite Description (n = 1)

BS27 ecosites are sparsely vegetated sites that may have a variety of water tolerant species (e.g., willows, sweet gale, river alder, and sedges) present but in very low quantities. They are often predominantly rock on the surface and the water table is near the surface and usually visible.

Characteristic Speci	
A MARACTERISTIC SHECT	29

Layer (Richness)	Common name	% constancy	% cover	Latin name
tree (3.0)				
shrub (3.0)	white birch	100	1	Betula papyrifera
	willows	100	1	Salix spp.
	sweet gale	100	1	Myrica gale
	river alder	100	1	Alnus incana
	trembling aspen	100	0.3	Populus tremuloides
	white spruce	100	0.1	Picea glauca
herb (15.0)	sedges	100	3	Carex spp.
	rough cinquefoil	100	1	Potentilla norvegica
	rough hair grass	100	0.5	Agrostis scabra
	marsh yellow cress	100	0.5	Rorippa islandica
	bristly buttercup	100	0.5	Ranunculus pensylvanicus
	slough grass	100	0.5	Beckmannia syzigachne
	fireweed	100	0.3	Chamerion angustifolium
	rushes	100	0.3	Juncus spp.
	small bedstraw	100	0.3	Galium trifidum
	hemlock	100	0.3	Cicuta spp.
	creeping spearwort	100	0.3	Ranunculus flammula
	tufted hair grass	100	0.1	Deschampsia caespitosa
	short-awned foxtail	100	0.1	Alopecurus aequalis
moss & lichen (9.0)	other mosses	100	1	-
ground cover	rock	100	75	
	open water	100	10	
	leaf litter	100	0.3	

BS27 Sedge rocky shore: Very moist sand

Ecozonal Synonyms

Taiga Shield	Boreal Shield	Boreal Plain	Prairie
NA	•	NA	NA

Soil Profile

Sou Proj	rite
Horizon start depth	
0	
0	L ₁₀
10	Bg ₁₀
15	
20	
30	
40	Cg ₁₀
50	
60	
70	
80	
90	

Site Features

Soil Great Gr	roup - Order	Gleysol ₁₀
Parent Mater	rial	Lacustrine
Moisture Reg	gime	Very Moist
Drainage		Poor ₁₀
Slope		$(0-0.5)_{10}$
Topographic	Position	Level ₁₀
Aspect		No Aspect ₁₀
Surface Textu	ire	Sand ₁₀
Effective Tex	ture	Sand ₁₀

Forest Productivity

none

Ecological Interpretation

Whereas BS26 ecosites more closely reflect the condition of the Athabasca Dunes ecodistrict, this ecosite (BS27) applies to the rocky-sandy shore conditions in other areas of the Boreal Shield ecozone. Like BS26, this ecosite also occurs as a narrow feature adjacent to lakes and ponds.

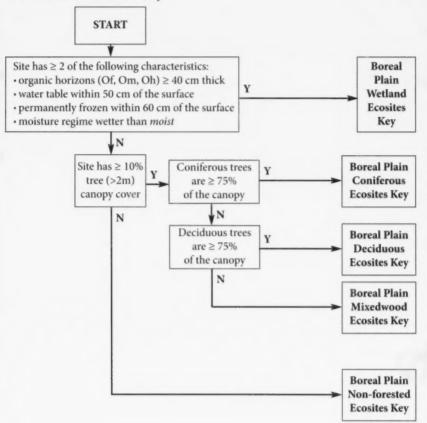
6.3 BOREAL PLAIN

Keys & Fact Sheets

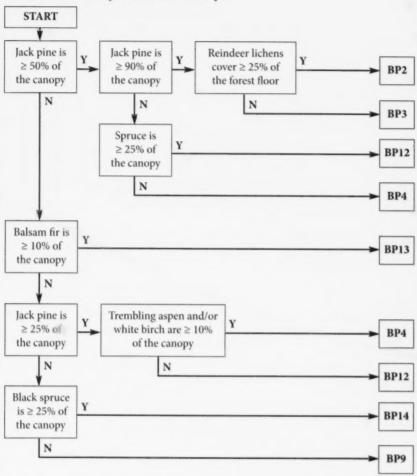
Ecosites of the Boreal Plain

- BP1 June grass mountain goldenrod grassland: Moderately fresh loamy sand
- BP2 Jack pine / lichen: Moderately fresh sand
- BP3 Jack pine / feathermoss: Moderately fresh loamy sand
- BP4 Jack pine trembling aspen / feathermoss: Moderately fresh sand
- BP5 Trembling aspen / prickly rose / grass: Fresh sand
- BP6 Trembling aspen / beaked hazel / sarsaparilla: Fresh loamy sand
- BP7 Trembling aspen white birch / sarsaparilla: Fresh loamy sand
- BP8 Trembling aspen white birch / mountain maple: Fresh sandy clay loam
- BP9 White spruce trembling aspen / feathermoss: Fresh sand
- BP10 Trembling aspen white spruce / feathermoss: Fresh silty loam
- BP11 White birch white spruce balsam fir: Fresh sandy clay loam
- BP12 Jack pine spruce / feathermoss: Fresh loamy sand
- BP13 White spruce balsam fir / feathermoss: Fresh sandy clay loam
- BP14 Black spruce / Labrador tea / feathermoss: Very moist sandy clay loam
- BP15 Balsam poplar white spruce / feathermoss: Very moist silty loam
- BP16 Balsam poplar trembling aspen / prickly rose: Fresh clay loam
- BP17 Manitoba maple balsam poplar / ostrich fern: Moist silty clay loam
- BP18 Black spruce tamarack treed swamp: Wet humic organic
- BP19 Black spruce treed bog: Moderately wet fibric organic
- BP20 Labrador tea shrubby bog: Wet fibric organic
- BP21 Graminoid bog: Wet fibric organic
- BP22 Open bog: Wet humic organic
 - BP23 Tamarack treed fen: Wet fibric organic
 - BP24 Leatherleaf shrubby poor fen: Wet fibric organic
 - BP25 Willow shrubby rich fen: Wet humic organic
 - BP26 Graminoid fen: Wet humic organic
 - BP27 Open fen: Wet fibric organic
 - BP28 Seaside arrow-grass marsh: Very moist humic organic

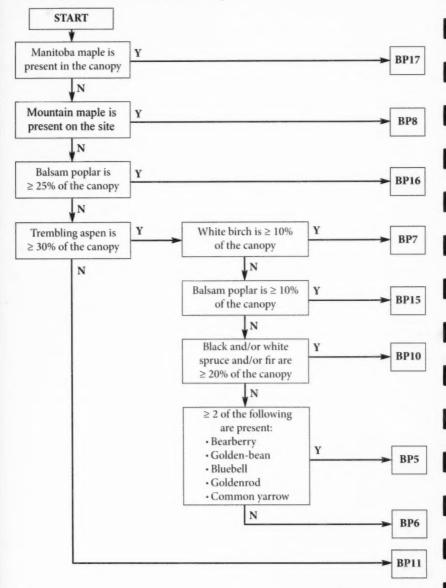
Boreal Plain Overview Key

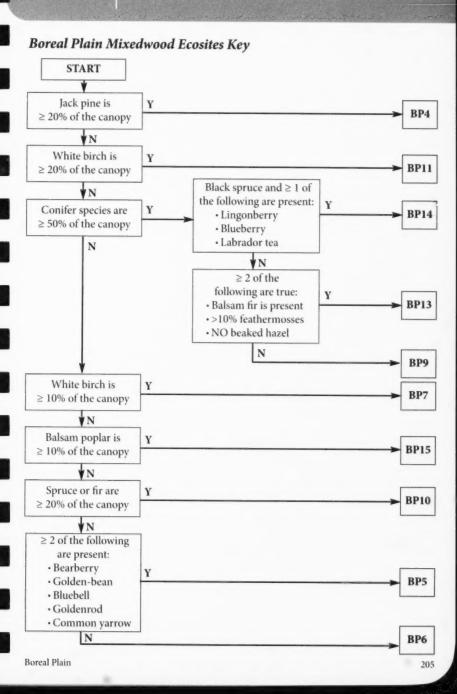


Boreal Plain Coniferous Ecosites Key

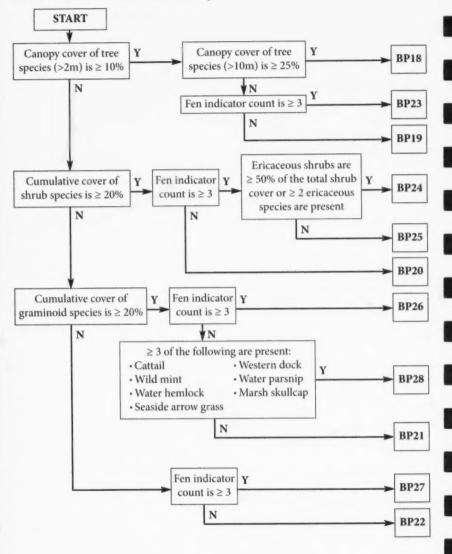


Boreal Plain Deciduous Ecosites Key

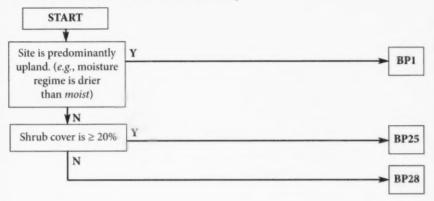




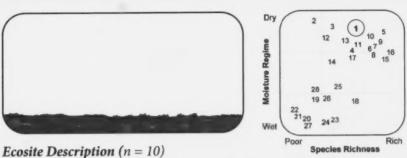
Boreal Plain Wetland Ecosites Key



Boreal Plain Non-Forested Ecosites Key



BP1 June grass - mountain goldenrod grassland: Moderately fresh loamy sand



BP1 ecosites typically contain a variety of graminoid species including June grass, hay sedge, purple oat grass, and Kentucky bluegrass, which can be locally very abundant. Relatively drought resistant shrub species such as Saskatoon, blueberry, choke cherry, and the rose species (prickly and common wild) can also be found on the site but with low cover values. Green reindeer lichen is common on these sites.

Charac	torictic	Species
Cnarac	ierisiic	Species

Layer (Richness)	Common name	% constancy	% cover	Latin name
tree (0.2)				
shrub (3.7)	Saskatoon	70	3	Amelanchier alnifolia
	blueberry	50	0.9	Vaccinium myrtilloides
	narrow-leaved meadowsweet	40	1	Spiraea alba
	choke cherry	40	1	Prunus virginiana
	prickly rose	40	1	Rosa acicularis
herb (19.7)	bluebell	90	0.3	Campanula rotundifolia
	June-grass	80	2	Koeleria macrantha
	northern bedstraw	80	1	Galium boreale
	early blue violet	80	0.4	Viola adunca
	cut-leaved anemone	70	0.3	Anemone multifida
	mountain goldenrod	60	1	Solidago simplex
	plains wormwood	60	0.7	Artemisia campestris
	hay sedge	50	4	Carex siccata
	purple oat grass	50	2	Schizachne purpurascens
	Richardson's alumroo	t 50	0.3	Heuchera richardsonii
	Kentucky bluegrass	40	17	Poa pratensis
	American vetch	40	0.6	Vicia americana
	western red lily	40	0.1	Lilium philadelphicum
moss & lichen	Schreber's moss	50	2	Pleurozium schreberi
(11.4)	green reindeer lichen	80	11	Cladina mitis

BP1 June grass - mountain goldenrod grassland: Moderately fresh loamy sand

Layer (Rich	nness)	Common name	% constancy	% cover	Latin name
ground cover		needle litter	50	0.5	
		woody debris	60	0.5	
		exposed soil	40	1	
Soil Prof	ile		Site Features		
Horizon start depth			Soil Great Group	p - Order	Eutric Brunisols Dark Gray Chernozem Melanic Brunisols
	Ah ₁₀ Aeh ₂	L ₉ F ₆	Parent Material		Eolians Fluvials Morainals
16	Ae ₁		Moisture Regim	e	Moderately Fresh ₄ Moderately Dry ₃
30		3m ₈			Very Fresh ₂ Moderately Moist ₁
	1	Bh ₃	Drainage		Rapid ₇ Imperfect ₃
40		Bg₂	Slope		(0-0.5) ₉ (5-9) ₁
50			Topographic Position		Level: Lower Slope:
60		Btj ₁	Audia.		Crest ₁
74	В	Bmg₁	Aspect		No Aspect ₉ West ₁
71		Surface Texture		Sand ₄ Loamy Sand ₄	
C	4	BC ₂ BCg ₂			Loam ₂
90 Cg ₂		2	Effective Texture	e	Loamy Sands Sands
					Loam ₂

Ecozonal Synonyms

Taiga Shield	Boreal Shield	Boreal Plain	Prairie
NA	NA		PR1

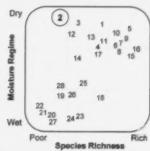
Forest Productivity

none

Ecological Interpretation

These ecosites are associated with the relatively limited occurrences of Chernozemic soils in the Boreal Plain ecozone. While they may occur in many areas of the Boreal Plain, they are usually encountered in Saskatchewan's island forests (e.g., the Fort à la Corne or Nisbet forests). Following fire, these sites will usually return to their original condition. In the absence of fire, they will also remain in the grassland condition, but the ecosite margins may show the ingress of the surrounding tree and shrub species, and often invasive exotic grasses such as smooth brome.





Ecosite Description (n = 14)

BP2 ecosites have a characteristically pure canopy of jack pine, a scattered ericaceous shrub and prickly rose understory, a near-continuous carpet of green reindeer and other lichens, and a significant cover of needle litter.

Characteristic Species

Layer (Richness)	Common name	% constancy	% cover	Latin name
tree (1.1)	jack pine	100	28	Pinus banksiana
shrub (4.5)	bearberry	100	6	Arctostaphylos uva-ursi
	blueberry	79	2	Vaccinium myrtilloides
	lingonberry	64	3	Vaccinium vitis-idaea
	jack pine	64	2	Pinus banksiana
	prickly rose	43	0.5	Rosa acicularis
herb (7.2)	wild lily-of-the-valley	86	1	Maianthemum canadense
	spreading dogbane	43	0.8	Apocynum androsaemifolium
	grasses	43	0.5	Graminoid spp.
moss & lichen	Schreber's moss	93	6	Pleurozium schreberi
(22.2)	Dicranum mosses	71	0.9	Dicranum spp.
	green reindeer lichen	100	43	Cladina mitis
	cup and spike lichens	100	2	Cladonia spp.
	grey reindeer lichen	79	5	Cladina rangiferina
	northern reindeer lichen	79	1	Cladina stellaris
ground cover	needle litter	93	21	
	woody debris	93	8	
	leaf litter	71	1	

Ecozonal Synonyms

Taiga Shield	Boreal Shield	Boreal Plain	Prairie
TS2	BS3		NA

Jack pine/lichen: Moderately fresh sand BP2

Soil Profile

Horizon start dapth 30 Ae₇ Aeh₃ Ah₁ 9 20 Bm₁₀ 30 BC7 60 66 Co Cg₁ 80

Forest Productivity

ı		Tree Specie
		jP
ı	Site Index (m at 50 years)	13.3 ± 1.5
	Volume (m³/ha)	79.7 ± 34.4
	MAI (m³/ha/yr)	1.37 ± 0.71
	Basal Area (m²/ha)	15 ± 5
	Age (years)	64 ± 5
١	Height (m)	12.2 ± 1
ı	D.B.H. (cm)	14.6 ± 2.1
1	Density (stems/ha)	900 ± 239

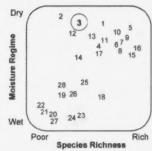
Site Features

One I chimics	
Soil Great Group - Order	Eutric Brunisols
	Dystric Brunisol ₁
	Dark Gray Chernozemi
Parent Material	Fluvials
	Lacustrine:
	Eolian ₁
Moisture Regime	Moderately Dry4
	Moderately Fresh ₄
	Fresh ₁
	Very Fresh
Drainage	Rapid ₈
	Moderately Welli
	Welli
Slope	(0-0.5)4
	(2-5)3
	$(0.5-2)_2$
	(5-9)
Topographic Position	Upper Slope ₄
	Levels
	Mid-Slope ₂
	Lower Slope
	Cresti
Aspect	No Aspect ₄
	West ₄
	South ₁
	East ₁
Surface Texture	Sand ₈
	Loamy Sandi
	Sandy Loam
Effective Texture	Sand-
	Loamy Sand ₂
	Sandy Loam

Ecological Interpretation

These ecosites have the lowest species richness and lowest tree productivity (as measured by site index) of all the jack pine or conifer ecosites in the Boreal Plain ecozone. Following disturbance these sites usually return to their former condition. In the absence of disturbance these sites may still resemble their former species composition but the canopy closure will likely decrease and shrub species may become more prominent.





Ecosite Description (n = 54)

BP3 ecosites are dominated by a relatively consistent canopy of jack pine. Approximately 75% of the stands associated with this ecosite are pure jack pine. The remainder may have up to 10% inclusion of trembling aspen however spruce is also possible. The understory of these sites is predominantly ericaceous shrubs and green alder. For the most part, feathermosses (mostly Schreber's) cover the forest floor.

Characteristic Species

Layer (Richness)	Common name	% constancy	% cover	Latin name
tree (1.7)	jack pine	100	44	Pinus banksiana
shrub (6.4)	blueberry	93	5	Vaccinium myrtilloides
	lingonberry	76	4	Vaccinium vitis-idaea
	green alder	70	10	Alnus viridis
	prickly rose	65	3	Rosa acicularis
	bearberry	50	5	Arctostaphylos uva-ursi
	Labrador tea	41	5	Ledum groenlandicum
herb (9.4)	wild lily-of-the-valley	89	2	Maianthemum canadense
	twinflower	72	3	Linnaea borealis
	grasses	48	3	Graminoid spp.
	wild sarsaparilla	44	2	Aralia nudicaulis
	starflower	44	0.9	Trientalis borealis
	bunchberry	43	3	Cornus canadensis
moss & lichen	Schreber's moss	96	39	Pleurozium schreberi
(16.2)	Dicranum mosses	76	2	Dicranum spp.
	stair-step moss	70	2	Hylocomium splendens
	knight's plume	56	2	Ptilium crista-castrensis
	cup and spike lichens	76	0.8	Cladonia spp.
	green reindeer lichen	65	3	Cladina mitis
ground cover	needle litter	89	26	
	woody debris	98	9	
	leaf litter	93	13	14

BP3 Jack pine/feathermoss: Moderately fresh loamy sand

Ecozonal Synonyms

Taiga Shield	Boreal Shield	Boreal Plain	Prairie
NA	BS4 + BS5		NA

Soil Profile

Horizon start depth			
7	colonie	total Aplana	and Barrell
0	۸۵	Λb	Anh
6 -	Ae ₈	Ah ₂	Aeh ₁
17		AB ₁	
"		Bm ₉	
		Bt ₁	
30		Bf ₁	
41		Bmg ₁	
50		BC ₅	
64			
70		C ₇	
		C ₇	

Site Features	
Soil Great Group - Order	Eutric Brunisol
	Dystric Brunisols
	Luvic Gleysoli
Parent Material	Fluvial ₆
	Morainal ₂
	Eolian ₁
	Lacustrine ₁
	Glacio-fluvial
Moisture Regime	Moderately Fresha
	Fresh ₂
	Moderately Dry2
	Moist
	Very Fresh
Drainage	Rapid ₄
	Moderately Well4
	Well ₄
	Very Rapid ₁
	Imperfecti
Slope	$(0-0.5)_4$
	$(0.5-2)_3$
	(2-5)1
	(5-9)1
	(9-15)1
Topographic Position	Level ₄
	Mid-Slope:
	Upper Slope
	Toe Slope ₁
	Lower Slope
	Cresti
Aspect	No Aspects
	West ₂
	North
	South

Easti

Sanda Loamy Sands

Surface Texture

80

BP3 | Jack pine/feathermoss: Moderately fresh loamy sand

Site Features

Effective Texture

Loamy Sanda
Sanda
Sandy Loams
Silty Sands

Forest Productivity

	Tree Species					
	bS	jΡ	tA.	wB	wS	
Site Index (m at 50 years)	12.7 ± 0.6	14.9 ± 0.6	12 ± 1.8	11.3 ± 6.8	11.8 ± 3.2	
Volume (m³/ha)	12.3 ± 19.3	179.2 ± 31.5	6.6 ± 5.5	5.5 ± 13.2	11.2 ± 142.5	
MAI (m3/ha/yr)	0.19 ± 0.29	2.65 ± 0.42	0.10 ± 0.07	0.1 ± 0.05	-	
Basal Area (m²/ha)	2.1 ± 1.6	26.7 ± 3.4	1.4 ± 0.9	1.6 ± 8.2	2.9 ± 14.2	
Age (years)	60 ± 18	67 ± 4	53 ± 4	69 ± 12	63 ± 22	
Height (m)	13.7 ± 10.8	15.1 ± 0.9	11.3 ± 1.9	12.1 ± 11.9	10.1 ± 60.7	
D.B.H. (cm)	16.2 ± 6.3	17.3 ± 1.9	10.7 ± 1.8	10.4 ± 9.1	16.7 ± 76.1	
Density (stems/ha)	$100 \pm x$	1369 ± 222	150 ± 51	200 ± 1271	150 ± 635	

Ecological Interpretation

As described above, BP3 ecosites may occasionally have trembling aspen present but not to the extent seen in BP4. Following disturbance, these ecosites may more closely resemble the composition of BP4 or even BP5 ecosites. In the absence of disturbance, stand openings will likely become more common and shrub layer development may become more pronounced but the ecosite will likely remain the same.

Green alder contributes nitrogen to these sites by biologically fixing (i.e., converting) atmospheric nitrogen to ammonia. While the majority of nitrogen-fixing plants are in the legume family, alder is also capable of fixing nitrogen because of its symbiotic relationship with the Frankia actinobacteria.

BP4 | Jack pine - trembling aspen /feathermoss: Moderately fresh sand



Ecosite Description (n = 35)

BP4 ecosites usually (63% of the sites) occur as pine-dominated mixedwoods with trembling aspen being the predominant hardwood species. Approximately 20% of the sites will exist in a near pure pine condition. The balance of the sites may exist in a pine-aspen-spruce condition. These ecosites may have a diverse shrub understory which includes the ericaceous shrubs, prickly rose, green alder and willows. The forest floor will have a conspicuous, but not predominant distribution of feathermosses (*i.e.*, mostly Schreber's) and high cover values of leaf and needle litter.

Characteristic Species

Layer (Richness)	Common name	% constancy	% cover	Latin name
tree (3.1)	jack pine	100	33	Pinus banksiana
	trembling aspen	94	22	Populus tremuloides
shrub (7.1)	blueberry	86	5	Vaccinium myrtilloides
	prickly rose	63	2	Rosa acicularis
	green alder	54	8	Alnus viridis
	trembling aspen	51	2	Populus tremuloides
	lingonberry	49	4	Vaccinium vitis-idaea
	willows	46	2	Salix spp.
	bearberry	43	4	Arctostaphylos uva-ursi
	common snowberry	40	1	Symphoricarpos albus
herb (12.4)	twinflower	80	3	Linnaea borealis
	wild lily-of-the-valley	77	2	Maianthemum canadense
	grasses	60	11	Graminoid spp.
	bunchberry	54	6	Cornus canadensis
	starflower	49	1	Trientalis borealis
	wild sarsaparilla	46	3	Aralia nudicaulis
	fireweed	43	0.8	Chamerion angustifolium
	northern bedstraw	43	0.6	Galium boreale
	wild strawberry	43	0.4	Fragaria virginiana
moss & lichen	Schreber's moss	94	17	Pleurozium schreberi
(18.2)	stair-step moss	83	3	Hylocomium splendens
	Dicranum mosses	66	0.8	Dicranum spp.
Boreal Plain				215

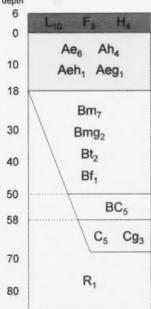
Layer (Richness)	Common name	% constancy	% cover	Latin name
moss & lichen	knight's plume	46	1	Ptilium crista-castrensis
(18.2)	cup and spike lichens	66	1	Cladonia spp.
ground cover	needle litter	60	15	
	woody debris	97	8	*
	leaf litter	100	44	*

Ecozonal Synonyms

Taiga Shield	Boreal Shield	Boreal Plain	Prairie
NA	BS6		NA

Soil Profile

Horizon start depth 6



Site Features

Soil Great Group - Order	Eutric Brunisols
	Dystric Brunisol
	Melanic Brunisol
	Gray Luvisol
	Dark Gray Chernozem
Parent Material	Fluvial ₆
	Morainal ₂
	Eolian ₁
	Lacustrine ₁



Depression:

BP4 Jack pine - trembling aspen /feathermoss Moderately fresh sand

Site Features

No Aspect	No Aspects	West
North	East	
Surface Texture	Sands	
Loamy Sand		
Sandy Loam		
Effective Texture	Sands	
Sands		

ffective Texture

Sand₁

Loamy Sand₂

Sandy Loam₂

Silty Sand₁

Clay Loam₁

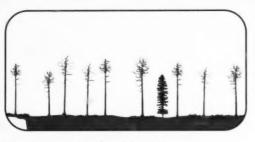
Forest Productivity

10.0011.00			7	ree Speci	es		
	bF	bP	bS	jP	tA	wB	wS
Site Index	14.5 ± 10	14 ± x	12.5 ± 3.3	16.2 ±	14.5 ±	10.8 ±	13.6 ±
(m at 50 years)				1.2	1.2	18.4	3.3
Volume	8.3 ± 18.2	41 ± x	11.3 ± 6.4	130.1 ±	34.7 ±	10.5 ±	30 ± 21
(m³/ha)				21.2	13.3	29.1	
MAI	0.16 ± 0.5	$0.76 \pm x$	0.2 ± 0.12	2.09 ±	0.55 ±	0.16 ±	0.51 ± 0.3
(m³/ha/yr)				0.35	0.2	0.55	
Basal Area	1.9 ± 3.2	$9.8 \pm x$	2.8 ± 1	18.7 ±	6 ± 1.7	2.4 ± 5	5.5 ± 2.7
(m²/ha)				2.7			
Age (years)	52 ± 21	49 ± 13	65 ± 8	63 ± 4	60 ± 4	89 ± 71	67 ± 9
Height (m)	9.9 ± 6.5	$13.5 \pm x$	10.8 ±	16.4 ±	13 ± 1.4	11.5 ±	12.8 ±
			2.2	1.2		1.8	3.6
D.B.H. (cm)	9.9 ± 5.1	$12.2 \pm x$	13.2 ±	21.8 ±	14.2 ±	9.4 ± 4.9	17.8 ±
			5.2	2.4	1.8		6.6
Density	233 ± 379	$800 \pm x$	257 ±	649 ±	366 ± 86	225 ±	289 ±
(stems/ha)			168	189		239	265

Ecological Interpretation

While this ecosite generally exists as a jack pine aspen mixedwood, it can also include a variety of other tree species (as identified in the forest productivity table). Following disturbance these ecosites may more closely resemble a BP5 or BP10 ecosite depending upon the previous stand composition. In the absence of disturbance aspen may be expected to drop out of the overstory and the site may more closely resemble a BP3 ecosite. An abundant presence of white spruce may shift it toward a BP9 ecosite with less compositional emphasis on the trembling aspen. Green alder, which is found on this site, is capable of biologically fixing nitrogen in its root nodules because of the symbiotic relationship it has with the Frankia actinobacteria.

BP5 Trembling aspen/prickly rose/grass: Fresh sand



Dry

2
3
1
12
13
11
67
16
14
17
8
16
14
17
8
16
18
22
21
20
24
23
27

Poor
Species Richness
Rich

Ecosite Description (n = 17)

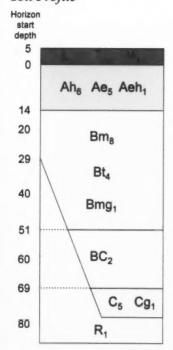
BP5 ecosites usually exist as pure trembling aspen stands (on approximately 65% of the sites) but may also incorporate up to 20% white spruce in the stand composition on the remaining sites. Rose, Saskatoon, and common snowberry are frequently encountered shrubs while grasses and a rich herbaceous layer are also common. Much of the ground cover consists of leaf litter while moss and lichen cover is very low.

Layer (Richness)	Common name	% constancy	% cover	Latin name
tree (2.4)	trembling aspen	100	51	Populus tremuloides
	white spruce	41	2	Picea glauca
shrub (8.4)	prickly rose	100	6	Rosa acicularis
	Saskatoon	88	4	Amelanchier alnifolia
	common snowberry	76	4	Symphoricarpos albus
	bearberry	71	5	Arctostaphylos uva-ursi
	trembling aspen	71	0.5	Populus tremuloides
	twining honeysuckle	65	1	Lonicera dioica
	beaked hazel	59	6	Corylus cornuta
	willows	53	2	Salix spp.
	choke cherry	47	2	Prunus virginiana
	pin cherry	47	1	Prunus pensylvanica
	raspberry	41	4	Rubus idaeus
herb (19.8)	wild lily-of-the-valley	100	2	Maianthemum canadense
	northern bedstraw	100	0.8	Galium boreale
	wild strawberry	82	0.8	Fragaria virginiana
	grasses	76	22	Graminoid spp.
	common yarrow	76	0.3	Achillea millefolium
	purple peavine	71	0.8	Lathyrus venosus
	American vetch	65	0.5	Vicia americana
	asters	59	0.6	Aster spp.
	bluebell	59	0.3	Campanula rotundifolia

BP5 Trembling aspen/prickly rose/grass: Fresh sand

Layer (Richness)	Common name	% constancy	% cover	Latin name
herb (19.8)	bunchberry	53	11	Cornus canadensis
	fireweed	53	3	Chamerion angustifolium
	creamy peavine	53	2	Lathyrus ochroleucus
	goldenrod	53	0.4	Solidago spp.
	twinflower	47	2	Linnaea borealis
	wild sarsaparilla	41	3	Aralia nudicaulis
	western Canada violet	41	3	Viola canadensis
	dewberry	41	2	Rubus pubescens
	pink wintergreen	41	2	Pyrola asarifolia
	veiny meadow rue	41	1	Thalictrum venulosum
	dandelion	41	0.4	Taraxacum officinale
moss & lichen	Schreber's moss	53	0.7	Pleurozium schreberi
(10.5)	other mosses	58	1	
ground cover	leaf litter	94	61	
	woody debris	76	9	

Soil Profile



Site Features

Soil Great Group - Order	Eutric Brunisol7
	Gray Luvisol3
Parent Material	Fluvial ₄
	Eolian ₄
	Lacustrine ₂
	Morainal ₁
Moisture Regime	Fresh ₄
	Moderately Fresh ₄
	Moderately Dry ₂
	Very Fresh
Drainage	Rapids
	Well ₂
	Moderately Well ₂
	Imperfect:
Slope	$(0-0.5)_8$
	$(0.5-2)_2$
Topographic Position	Level ₈
	Crest ₁
	Lower Slope
	Mid-Slope ₁
Aspect	No Aspect ₉
	North
	East ₁

BP5 Trembling aspen/prickly rose/grass: Fresh sand

Site Features

Surface Texture Sand-

Sandy Loam

Loam

Silty Loam

Effective Texture

Sand

Loamy Sandi

Clay Loam

Sandy Loam

Loam₁

Clayı

Ecozonal Synonyms

Taiga Shield	Boreal Shield	Boreal Plain	Prairie
NA	NA	-	PR4

Forest Productivity

Tree Species

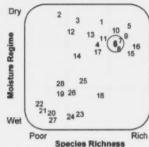
	bF	jΡ	tA	wS
Site Index (m at 50 years)	-	14.7 ± 11.4	14.8 ± 2.5	16.7 ± 1.5
Volume (m³/ha)	$8.8 \pm x$	12.4 ± 20.7	157.5 ± 61	13.3 ± 16.1
MAI (m³/ha/yr)	$0.1 \pm x$	0.44 ± 0.47	2.53 ± 0.99	0.31 ± 0.39
Basal Area (m²/ha)	$2 \pm x$	3 ± 2.8	24.4 ± 6.5	3.3 ± 2.4
Age (years)	$51 \pm x$	50 ± 9	65 ± 7	57 ± 6
Height (m)	$11.3 \pm x$	10.9 ± 5.6	15.2 ± 2.3	10.7 ± 7.2
D.B.H. (cm)	16 ± x	18.5 ± 11	17.3 ± 2	15.8 ± 8.8
Density (stems/ha)	$100 \pm x$	$100 \pm x$	1046 ± 296	200 ± 184

Ecological Interpretation

BP5 ecosites are among the most diverse ecosites on the Boreal Plain ecozone despite existing in relatively dry (*i.e.*, moderately fresh - fresh) conditions. In the absence of disturbance these ecosites may transition toward the BP9 condition. Following stand-replacing disturbances such as fire, blow-down and forest harvesting, these ecosites will usually return to dominance by trembling aspen via the process of aspen suckering.







Ecosite Description (n = 65)

BP6 ecosites occur as pure or nearly pure stands of aspen approximately 88% of the time. The remainder of the sites may have white spruce or white birch occupying a small proportion (<10%) of the canopy. The understory species composition of BP6 may resemble that of BP5 with prickly rose and Saskatoon commonly encountered, but BP6 will have relatively higher proportions of low bush-cranberry, wild sarsaparilla, and beaked hazel. Moss and lichen cover is relatively low and leaf litter is relatively high.

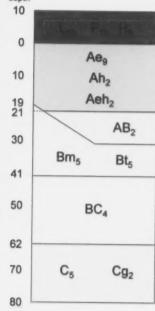
Layer (Richness)	Common name	% constancy	% cover	Latin name
tree (2.3)	trembling aspen	98	64	Populus tremuloides
shrub (8.0)	prickly rose	94	4	Rosa acicularis
	low bush-cranberry	75	6	Viburnum edule
	Saskatoon	55	2	Amelanchier alnifolia
	willows	55	2	Salix spp.
	blueberry	49	5	Vaccinium myrtilloides
	beaked hazel	46	20	Corylus cornuta
	trembling aspen	43	1	Populus tremuloides
	twining honeysuckle	43	0.8	Lonicera dioica
	green alder	40	11	Alnus viridis
	pin cherry	40	6	Prunus pensylvanica
herb (17.3)	wild lily-of-the-valley	95	1	Maianthemum canadense
	bunchberry	91	6	Cornus canadensis
	wild sarsaparilla	89	10	Aralia nudicaulis
	dewberry	86	3	Rubus pubescens
	twinflower	83	3	Linnaea borealis
	fireweed	66	2	Chamerion angustifolium
	starflower	66	0.8	Trientalis borealis
	tall lungwort	65	2	Mertensia paniculata
	palmate-leaved coltsfoot	65	1	Petasites palmatus

BP6 Trembling aspen/beaked hazel/sarsaparilla: Fresh loamy sand

Layer (Richness)	Common name	% constancy	% cover	Latin name
herb (17.3)	wild strawberry	60	1	Fragaria virginiana
	northern bedstraw	58	0.6	Galium boreale
	pink wintergreen	55	2	Pyrola asarifolia
	American vetch	44	0.4	Vicia americana
	grasses	43	6	Graminoid spp.
	kidney-leaved violet	43	0.3	Viola renifolia
	creamy peavine	40	1	Lathyrus ochroleucus
moss & lichen	other mosses	82	3	
(12.5)	Schreber's moss	57	4	Pleurozium schreberi
	stair-step moss	49	1	Hylocomium splendens
	other lichens	42	0.4	
ground cover	leaf litter	100	76	
	woody debris	91	14	

Soil Profile

Horizon start depth



Site Features

Soil Great Group - Order Gray Luvisols

Parent Material Eutric Brunisols

Dystric Brunisols

Fluvials

Lacustrines

Morainal₂

Moisture Regime Fresh₅

Very Fresh₂

Moderately Fresh₁

Moderately Dry₁
Moist₁
Very Moist₁

Very Moist₁

Drainage

Well₄

Moderately Well₂

Rapid₁

Imperfect₁

Slope

(0-0.5)₄
(0.5-2)₂

 $(2-5)_2$

Cresti

Topographic Position (5-9)

Levels

Mid-Slopes
Upper Slopes
Lower Slopes

Site Features **Ecozonal Synonyms** Taiga Shield Boreal Shield Aspect No Aspecta BS15 TS5 North: East: **Boreal Plain** Prairie PR5 West2 South **Surface Texture** Loamy Sands Sand Loam **Effective Texture** Loamy Sanda Sandy Clay Loam₂ Sandi Sandy Loam Clay Loam Silty Clay: Silty Clay Loam Clavi

Forest Productivity

1010311100	incirrity		7	Free Species	i i		
	bF	bP	bS	tA.	tl.	wB	wS
Site Index	17.9 ± 16.3	15.5 ± 7	16.1 ± 41.9	17.2 ± 0.7		9.9 ± x	15 ± 2.1
(m at 50 years)							
Volume	34.6 ± 95	14 ± 11.7	13.4 ±	225.3 ±	7.9 ± x	8.4 ± 26.6	39 ± 51.4
(m³/ha)			170.1	36.6			
MAI	0.91 ± 5.77	0.24 ±	$0.49 \pm x$	3.2 ± 0.5	$0.24 \pm x$	$0.55 \pm x$	0.9 ± 1.1
(m3/ha/yr)		0.2					
Basal Area	4.7 ± 10.1	2.8 ± 1.8	3 ± 17	28.6 ± 3.5	$1.5 \pm x$	1.5 ± 2.6	5.3 ± 5
(m²/ha)							
Age (years)	44 ± 9	55 ± 6	49 ± 8	70 ± 4	$38 \pm x$	44 ± 25	59 ± 10
Height (m)	13.8 ± 16.7	14.8 ±	11.5 ±	17.7 ± 0.9	13.2 ± x	10.9 ±	11.8 ± 4.9
		4.2	57.2			11.9	
D.B.H. (cm)	16 ± 19	17.3 ± 6.3	16 ± 96.4	18.4 ± 1.3	13.8 ± x	11.9 ±	18.7 ± 10.2
						11.4	
Density	167 ± 143	120 ± 56	200 ±	1121 ±	$100 \pm x$	125 ± 80	150 ± 51
(stems/ha)			1271	150			

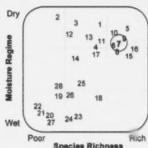
Ecological Interpretation

BP6 ecosites are among the most species diverse sites on the Boreal Plain ecozone. While similar to BP5 ecosites, the BP6 tends to be moister and includes a wider range of incidental tree species. BP6 ecosites also exhibit higher productivity levels for aspen than BP5 ecosites. Following stand-replacing disturbances such as fire or forest harvesting, these ecosites usually return to their former condition. In the absence of disturbance, these ecosites may transition toward the conditions observed on BP9.



BP7 Trembling aspen - white birch/sarsaparilla: Fresh loamy sand





Ecosite Description (n = 15)

BP7 ecosites may occasionally (about 33% of the sites) consist of a pure or near pure canopy of trembling aspen. It is far more common however for this ecosite to be an aspen dominated canopy mixedwood with lesser proportions of white birch and white spruce. Like BP5 and BP6, shrub levels are relatively low but the diversity of herbaceous species is relatively high with wild sarsaparilla being the most obvious. Moss and lichen ground cover is relatively low but leaf litter proportions are high.

Layer (Richness)	Common name	% constancy	% cover	Latin name
tree (3.4)	trembling aspen	100	46	Populus tremuloides
	white birch	100	23	Betula papyrifera
	white spruce	73	11	Picea glauca
shrub (7.4)	prickly rose	87	3	Rosa acicularis
	Saskatoon	67	1	Amelanchier alnifolia
	red currant	60	2	Ribes triste
	low bush-cranberry	53	3	Viburnum edule
	green alder	47	8	Alnus viridis
	blueberry	40	9	Vaccinium myrtilloides
	pin cherry	40	2	Prunus pensylvanica
	raspberry	40	2	Rubus idaeus
	white birch	40	2	Betula papyrifera
	white spruce	40	2	Picea glauca
	trembling aspen	40	0.4	Populus tremuloides
herb (17.6)	twinflower	100	2	Linnaea borealis
	wild lily-of-the-valley	100	1	Maianthemum canadense
	wild sarsaparilla	93	15	Aralia nudicaulis
	bunchberry	93	4	Cornus canadensis
	dewberry	80	2	Rubus pubescens
	starflower	80	1	Trientalis borealis
	tall lungwort	67	1	Mertensia paniculata
	bishop's cap	67	0.7	Mitella nuda

BP7 Trembling aspen - white birch/sarsaparilla Fresh loamy sand

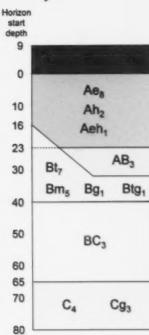
Layer (Richness)	Common name	% constancy	% cover	Latin name
herb (17.6)	kidney-leaved violet	67	0.3	Viola renifolia
	wild strawberry	60	0.9	Fragaria virginiana
	red and white baneberry	53	1	Actaea rubra
	fireweed	53	1	Chamerion angustifolium
	palmate-leaved coltsfoot	53	0.7	Petasites palmatus
	creamy peavine	53	0.5	Lathyrus ochroleucus
	sweet-scented bedstraw	53	0.4	Galium triflorum
	grasses	47	4	Graminoid spp.
	northern bedstraw	40	8	Galium boreale
	stiff club-moss	40	3	Lycopodium annotinum
	fringed aster	40	0.7	Symphyotrichum ciliolatum
moss & lichen	Schreber's moss	80	2	Pleurozium schreberi
(14.5)	other mosses	73	2	
	stair-step moss	47	2	Hylocomium splenden:
	Dicranum moss	47	2	Dicranum spp.
	cup and spike lichens	60	0.4	Cladonia spp.
	other lichens	40	1	
ground cover	needle litter	60	8	
	leaf litter	100	70	
	woody debris	87	10	

Ecozonal Synonyms

Taiga Shield	Boreal Shield	Boreal Plain	Prairie
TS5	BS15		NA

Trembling aspen - white birch/sarsaparilla: Fresh loamy sand





Site Features

Slope

Surface Texture

one remures					
Soil Great Group - Order	Gray Luvisols				
	Eutric Brunisol ₂				
	Dystric Brunisol ₁				
	Luvic Gleysolı				
	Humic Gleysoli				
	Humo-ferric Podzoli				
Parent Material	Fluvials				
	Lacustrines				
	Morainaly				
	Glacio-lacustrine				
Moisture Regime	Fresh				
	Very Freshs				
	Moderately Fresh				
	Moderately Dryi				
	Moist ₁				
	Very Moisti				
Drainage	Rapids				

Moderately Wells
Well ₂
Imperfect ₂
(0-0.5)s
(0.5-2)1
(2-5)1
(5-9)1
(9-15)1
(15-30)1
Levels
A 4 . A 455

	(15-30)1
Topographic Position	Level:
	Mid-Slopes
	Upper Slope
Aspect	No Aspects
	0 1

No Aspects	
South ₂	
North	
Westı	
East ₁	
Loamy Sand	8
Silty Sanda	

Silty Sanda
Sandı
Loam ₁
Silty Loam:
Clay Loams
Silty Clay Loam:
Cilm Clav.

BP7 Trembling aspen - white birch/sarsaparilla: Fresh loamy sand

Site Features

Effective Texture Loamy Sand2

Silty Clay₂

Sandy Clay Loam

Clay Loam

Clayı

Sandi Silty Sa

Silty Sand

Sandy Clay

Forest Productivity

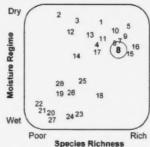
Torest Trout	uniny	Tree Species				
	bP	bS	jР	tA	wB	wS
Site Index (m at 50 years)	$12.1 \pm x$	9.8 ± x	19 ± x	16.8 ± 1.8	13.3 ± 2.4	15.6 ± 1.9
Volume (m³/ha)	$79.9 \pm x$	$6.2 \pm x$	$2.5 \pm x$	135.3 ± 62.4	10.8 ± 6.5	29.1 ± 26.2
MAI (m³/ha/yr)	$1.5 \pm x$	0.11 ± x	$0.04 \pm x$	2.4 ± 1.05	0.29 ± 0.15	0.74 ± 0.65
Basal Area (m²/ha)	$13.7 \pm x$	3 ± x	$0.7 \pm x$	17.8 ± 6.7	2.6 ± 1.2	4.8 ± 3.3
Age (years)	59 ± 70	65 ± 6	23 ± 19	63 ± 7	49 ± 7	58 ± 10
Height (m)	14 ± x	$8.4 \pm x$	$9.6 \pm x$	16 ± 2.2	11.6 ± 2	12.7 ± 4.3
D.B.H. (cm)	$20.4 \pm x$	$9.6 \pm x$	$9.6 \pm x$	16.7 ± 3.7	10 ± 1.1	17.8 ± 9.2
Density (stems/ha)	300 ± x	400 ± x	100 ± x	733 ± 201	308 ± 142	178 ± 84

Ecological Interpretation

BP7 ecosites are among the most diverse ecosites in the Boreal Plain ecozone. While they usually occur with a mixedwood composition (on about 67% of the sites), they can also occur as a hardwood stand. In the absence of disturbance these ecosites may transition toward the BP9 ecosite condition or even BP13 if the previous stand composition had sufficient balsam fir present. Following disturbance these ecosites may return to their former condition and composition.

Trembling aspen - white birch/mountain maple: Fresh sandy clay loam





Ecosite Description (n = 12)

The typical BP8 ecosite consists of a mixture of trembling aspen and white birch in the canopy, however mixtures including balsam poplar, white spruce, and balsam fir are also possible. Higher proportions of white spruce may make it easy to confuse these ecosites with BP10 or BP11 except that BP8 has an obvious presence of mountain maple. The herbaceous layer of this ecosite is generally thick while the presence of moss and lichens is low.

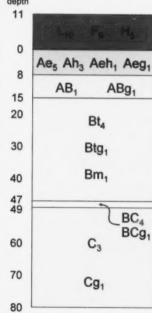
Layer (Richness)	Common name	% constancy	% cover	Latin name
tree (2.8)	trembling aspen	83	37	Populus tremuloides
	white birch	75	19	Betula papyrifera
shrub (9.6)	mountain maple	100	40	Acer spicatum
	beaked hazel	83	10	Corylus cornuta
	prickly rose	75	2	Rosa acicularis
	low bush-cranberry	75	1	Viburnum edule
	red currant	67	1	Ribes triste
	trembling aspen	67	0.7	Populus tremuloides
	Saskatoon	58	1	Amelanchier alnifolia
	red-osier dogwood	50	2	Cornus sericea
	choke cherry	50	0.7	Prunus virginiana
herb (15.8)	wild sarsaparilla	92	11	Aralia nudicaulis
	sweet-scented	92	0.3	Galium triflorum
	bedstraw			*
	dewberry	83	2	Rubus pubescens
	wild lily-of-the-valley	83	1	Maianthemum canadense
	bunchberry	75	4	Cornus canadensis
	fairybells	75	0.8	Prosartes trachycarpum
	common horsetail	67	4	Equisetum arvense
	tall lungwort	67	2	Mertensia paniculata
	western Canada violet	67	1	Viola canadensis
	wild strawberry	58	2	Fragaria virginiana
	bishop's cap	58	2	Mitella nuda

BP8 Trembling aspen - white birch/mountain maple: Fresh sandy clay loam

Layer (Richness)	Common name	% constancy	% cover	Latin name
herb (15.8)	palmate-leaved coltsfoot	58	1	Petasites palmatus
	asters	58	10.8	Aster spp.
	pink wintergreen	58	0.5	Pyrola asarifolia
	red and white baneberry	50	0.3	Actaea rubra
	grasses	42	0.7	Graminoid spp.
	northern bedstraw	42	0.4	Galium boreale
moss & lichen (15.2)	other mosses	75	1	-
ground cover	needle litter	41	0.8	
	woody debris	100	14	
	leaf litter	100	82	

Soil Profile

Horizon start depth



Site Features

Aspect

Soil Great Group - Order	Gray Luvisol
	Regosol ₂
	Humic Regosol ₁
	Luvic Gleysol
	Gleysolı
	Eutric Brunisol
Parent Material	Fluvial ₃
	Morainal ₃
	Lacustrine ₂
Moisture Regime	Fresh-
	Moderately Fresh
	Very Fresh
	Moist
	Very Moist:
Drainage	Well-
	Imperfect ₂
	Moderately Well:
	Rapidı
Slope	(0-0.5)4
	$(0.5-2)_3$
	(2-5)2
	(5-9)1
Topographic Position	Level ₄
	Upper Slope ₄
	Mid-Slope:
	Crest

No Aspecta

BP8 Trembling aspen - white birch/mountain maple: Fresh sandy clay loam

Site Features

North₄ Aspect South West **Surface Texture** Sandy Loam₄ Loamy Sands Silty Loam₂ **Effective Texture** Sandy Clay Loams Silty Clay₂ Sand Sandy Loam Silty Clay Loam Loam Clay Loam

Ecozonal Synonyms

Taiga Shield	Boreal Shield	Boreal Plain	Prairie
NA	NA	-	NA

Sandy Clay

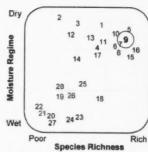
Forest Productivity

Torest Troumettriny	Tree Species					
	bF	bP	tA	wB	wS	
Site Index (m at 50 years)	$10.4 \pm x$	$12.3 \pm x$	21 ± 1.9	14.1 ± 1.5	13.9 ± 3	
Volume (m³/ha)	$68.4 \pm x$	$5.9 \pm x$	215.9 ± 131.2	66.3 ± 71.6	107.4 ± 167.9	
MAI (m³/ha/yr)	$0.93 \pm x$	$0.11 \pm x$	2.87 ± 1.99	0.99 ± 1.2	1.23 ± 1.9	
Basal Area (m²/ha)	$9.1 \pm x$	$1.5 \pm x$	23 ± 12.4	9.3 ± 9.5	15.3 ± 23.9	
Age (years)	78 ± 57	58 ± 89	73 ± 11	66 ± 10	88 ± 12	
Height (m)	$16.4 \pm x$	$11.7 \pm x$	22 ± 2.5	16.6 ± 3.5	17.1 ± 5.1	
D.B.H. (cm)	$16.6 \pm x$	$16.6 \pm x$	27.5 ± 3.9	18.1 ± 8.6	22.5 ± 5.8	
Density (stems/ha)	$400 \pm x$	$100 \pm x$	430 ± 268	283 ± 43	367 ± 574	

Ecological Interpretation

BP8 ecosites are usually hardwood stands although the spruce or fir component may be sufficient to nudge their classification toward the mixedwood type ecosites. In the absence of disturbance these ecosites may transition toward the BP13 ecosite condition if the spruce and fir components are sufficient. In the absence of a conifer species, this ecosite may more closely resemble a tall shrub dominated ecosite as the birch, aspen, or balsam poplar fall out of the canopy. Following disturbance it is expected that the site will return to its former condition.





Ecosite Description (n = 55)

BP9 ecosites have a canopy dominated by white spruce 90% of the time. Nearly 60% of the time, the canopy is either pure or nearly pure white spruce. Trembling aspen is the most common tree to accompany the spruce. However, white birch and balsam poplar may occasionally be found. While prickly rose is the most commonly encountered shrub, beaked hazel can be the most abundant. This ecosite has a conspicuous but patchy layer of feathermosses present.

Layer (Richness)	Common name	% constancy	% cover	Latin name
tree (3.2)	white spruce	100	45	Picea glauca
	trembling aspen	67	17	Populus tremuloides
	white birch	40	9	Betula papyrifera
shrub (7.9)	prickly rose	91	2	Rosa acicularis
	low bush-cranberry	60	2	Viburnum edule
	beaked hazel	53	9	Corylus cornuta
	trembling aspen	53	2	Populus tremuloides
	common snowberry	51	2	Symphoricarpos albus
	white spruce	47	2	Picea glauca
	Saskatoon	42	0.6	Amelanchier alnifolia
	twining honeysuckle	40	0.6	Lonicera dioica
herb (18.7)	bunchberry	80	5	Cornus canadensis
	twinflower	80	4	Linnaea borealis
	wild lily-of-the-valley	78	0.8	Maianthemum canadense
	dewberry	73	2	Rubus pubescens
	sweet-scented	71	0.4	Galium triflorum
	bedstraw			,
	wild sarsaparilla	69	4	Aralia nudicaulis
	wild strawberry	65	0.9	Fragaria virginiana
	grasses	64	4	Graminoid spp.
	tall lungwort	58	2	Mertensia paniculata
	bishop's cap	58	1	Mitella nuda
	palmate-leaved coltsfoot	58	1	Petasites palmatus

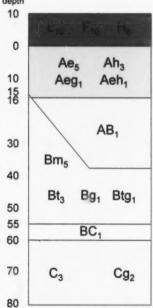
BP9

White spruce - trembling aspen/feathermoss: Fresh sand

Layer (Richness)	Common name	% constancy	% cover	Latin name
herb (18.7)	starflower	53	0.6	Trientalis borealis
	one-sided wintergreen	45	0.5	Orthilia secunda
	western Canada violet	43	0.8	Viola canadensis
	asters	40	0.7	Aster spp.
	kidney-leaved violet	40	0.4	Viola renifolia
moss & lichen	Schreber's moss	91	5	Pleurozium schreberi
(19.7)	stair-step moss	82	8	Hylocomium splendens
	other mosses	78	3	
	Dicranum moss	44	0.5	Dicranum spp.
	knight's plume	42	2	Ptilium crista-castrensis
	cup and spike lichens	60	0.7	Cladonia spp.
ground cover	needle litter	69	11	
	woody debris	91	16	
	leaf litter	91	42	

Soil Profile

Horizon start depth



Site Features

Soil Great	Group	- Order	Eutric	Brunisol ₄
------------	-------	---------	--------	-----------------------

Gray Luvisol3
Luvic Gleysol1
Gleysol1
Dark Gray Chernozem1
Parent Material
Lacustrine3
Eolian2
Fluvial2

Fluvial₂

Morainal₂

Moisture Regime

Fresh₃

Moderately Fresh₃

Very Moist₂
Very Fresh₁
Moderately Dry₁

Drainage
Rapid₃
Well₃

Moderately Well₁
Imperfect₁
Poor₁
Slope (0-0.5)₅

 $(2-5)_2$ $(0.5-2)_1$ $(5-9)_1$

Topographic Position

Level₄

Mid-Slope₂

Upper Slope₂

Lower Slope₁

BP9 White spruce - trembling aspen/feathermoss: Fresh sand

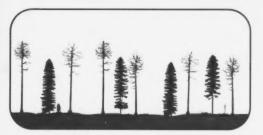
Site Features		Ecozonal Synonyms			
Topographic Position	Crest ₁	Taiga Shield	Boreal Shield		
Aspect	No Aspect ₄	TS6	NA		
	West ₂	Boreal Plain	Prairie		
	East ₂	-	PR7		
	North				
	South ₁				
Surface Texture	Sand₄				
	Loamy Sandi				
	Sandy Loam				
	Loam ₁				
	Silty Loam				
	Silty Clay ₁				
Effective Texture	Sand ₃				
	Silty Clay ₂				
	Sandy Clay Loam				
	Silty Clay Loam				
	Sandy Loam				
	Clay Loam				
	Clay				

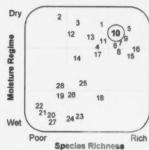
Forest Productivity

		free species					
	bF	bP	bS	jР	tA	wB	wS
Site Index (m at 50 years)	17.7 ± 22.3	15.3 ± 2.6	9.7 ± 7.7	15.4 ± 7	16.9 ± 1.5	12.3 ± 3.4	15.7 ±0.9
Volume (m³/ha)	6.7 ± 15.7	54.7 ± 42.4	22.7 ± 33.9	58.6 ± 158.6	57.9 ± 17.4	9.1 ± 13.9	203.8 ±35.9
MAI (m³/ha/yr)	0.09 ± 0.28	0.67 ± 0.52	0.3 ± 0.57	0.67 ± 3.77	0.76 ± 0.22	0.1 ± 0.16	2.37 ± 0.44
Basal Area (m²/ha)	1.8 ± 2.2	8.7 ± 6.1	3.7 ± 4.6	9 ± 39.2	7.8 ± 2.1	2.2 ± 1.7	28.1 ± 4
Age (years)	45 ± 24	76 ± 13	111 ± 24	93 ± 54	77 ± 10	88 ± 30	90 ± 6
Height (m)	10.9 ± 5.9	16.7 ± 2.4	11.6 ± 7.6	18.5 ± 14.6	16.6 ± 2.2	11.6 ± 4.8	16.4 ± 1.1
D.B.H. (cm)	12 ± 9.9	17.5 ± 3.7	14.5 ± 10.7	33.3 ± 75	20.5 ± 2.8	12.8 ± 7.2	22.9 ± 2.4
Density (stems/ha)	175 ± 239	325 ± 194	200 ± 225	1001± x	223 ± 55	200 ± 215	744 ± 132

Ecological Interpretation

BP9 ecosites usually occur as pure or nearly pure white spruce stands but also occur in a mixed-wood condition. Following disturbance these ecosites may more closely resemble the conditions associated with BP8 or BP7 although they may migrate toward BP15 or BP16 if they had sufficient quantities of balsam poplar present. In the absence of disturbance these ecosites would retain much of their original character except that the loss of the hardwood component would possibly be met with an increase in the shrub component.





Ecosite Description (n = 36)

BP10 ecosites are typically mixedwoods with trembling aspen leading over white spruce although balsam fir or black spruce may occasionally occur in the canopy. The shrub understory tends to be less diverse than the other mixedwood ecosites (e.g., BP7, BP8) but the herbaceous layer is often as rich. Feathermosses are apparent on these ecosites amongst the consistent cover of leaf litter.

Layer (Richness)	Common name	% constancy	% cover	Latin name
tree (3.2)	trembling aspen	100	46	Populus tremuloides
	white spruce	86	23	Picea glauca
shrub (6.7)	prickly rose	89	3	Rosa acicularis
	low bush-cranberry	72	2	Viburnum edule
	trembling aspen	64	1	Populus tremuloides
	white spruce	42	2	Picea glauca
herb (16.9)	bunchberry	94	3	Cornus canadensis
	twinflower	86	1	Linnaea borealis
	palmate-leaved	81	1	Petasites palmatus
	coltsfoot			
	wild sarsaparilla	78	5	Aralia nudicaulis
	dewberry	78	2	Rubus pubescens
	wild lily-of-the-valley	78	1	Maianthemum canadense
	starflower	61	0.6	Trientalis borealis
	tall lungwort	58	1	Mertensia paniculata
	wild strawberry	58	0.7	Fragaria virginiana
	bishop's cap	56	1	Mitella nuda
	grasses	50	6	Graminoid spp.
	sweet-scented	50	0.6	Galium triflorum
	bedstraw			
	fireweed	47	0.9	Chamerion angustifolium
	one-sided wintergreen	47	0.3	Orthilia secunda
	creamy peavine	44	0.9	Lathyrus ochroleucus

BP10 Trembling aspen - white spruce/feathermoss: Fresh silty loam

Layer (Richness)	Common name	% constancy	% cover	Latin name
herb (16.9)	pink wintergreen	44	0.5	Pyrola asarifolia
moss & lichen	other mosses	97	2	
(21.0)	Schreber's moss	81	5	Pleurozium schreberi
	stair-step moss	67	10	Hylocomium splendens
	knight's plume	53	0.6	Ptilium crista-castrensis
	Dicranum moss	44	0.5	Dicranum spp.
	cup and spike lichens	67	0.5	Cladonia spp.
ground cover	needle litter	64	8	
	woody debris	97	13	
	leaf litter	100	57	

Soil Profile

Horizon start depth	,	
11	(A) TAN MA	A CONTRACTOR OF THE PARTY OF TH
0	Ae ₇ Ah ₁ Aeh ₁	
14		
20	AB ₂	
30	Bm ₆	
40	Bt ₆	
50	Bmg ₁	
64	C Ca Bo	_
70	C ₃ Cg ₂	2
80		

Site Features

Soil Great Group - Order	Gray Luvisols
	Eutric Brunisol ₄
	Dark Gray Chernozem
Parent Material	Fluvial ₃
	Lacustrines
	Morainal ₃
Moisture Regime	Fresh ₆
	Moderately Fresh
	Moderately Moist
	Moist
Drainage	Well₄
	Moderately Well ₂
	Imperfect ₂
	Rapidi
Slope	(0-0.5)4
	(0.5-2)3
	(2-5)2
	(5-9)1
Topographic Position	Level
	Mid-Slope ₂
	Upper Slope ₂
	Lower Slope ₁
Aspect	No Aspecta
	North ₂
	East ₂
	South ₁
	West ₁

BP10 Trembling aspen - white spruce/feathermoss: Fresh silty loam

Site Features	<i>Seatures</i>		nonyms
Surface Texture	Sands Silty Loams	Taiga Shield TS5	Boreal Shield NA
	Loamy Sandı Loamı Silty Loamı Silty Clay Loamı	Boreal Plain	Prairie PR7
Effective Texture	Sandy Clay Loam ₂ Silty Loam ₂ Silty Clay ₁ Sand ₁ Clay ₁ Clay Loam ₁ Sandy Loam ₁ Silty Clay Loam ₁		

Forest Productivity

1010111011	,			Tree Species	5		
	bF	ьР	bS	jΡ	tA	wB	wS
Site Index (m at 50 years)	16.1 ± 3.3	12.6 ± 6	12.2 ± 1.7	15.9 ± 7.6	16.7 ± 1.3	9.8 ± x	14.5 ± 1.0
Volume (m³/ha)	25.1 ± 15.1	32.3 ± 58.5	51.2 ± 39.8	40.7 ± 362.3	224.4 ± 51.2	5.2 ± x	73.4 ± 26
MAI (m¹/ha/yr)	0.4 ± 0.28	0.61 ± 1.44	0.62 ± 0.5	$1.1\pm x$	2.84 ± 0.69	$0.04 \pm x$	0.9 ± 0.28
Basal Area (m²/ha)	4.7 ± 2.8	5 ± 7.7	8.2 ± 5.2	5.9 ± 39.8	26.8 ± 5	$0.8 \pm x$	11.5 ± 2.9
Age (years)	57 ± 11	70 ± 11	94 ± 13	76 ± 24	80 ± 7	125 ± 19	76 ± 8
Height (m)	13 ± 2.5	16.2 ± 8.1	14 ± 3.7	15.8 ± 57	19.1 ± 2	$16.2 \pm x$	13.9 ± 1.8
D.B.H. (cm)	14.8 ± 4.4	18.5 ± 13.8	15.8 ± 5.6	22.4 ± 146.5	22.6 ± 2.7	$10.1 \pm x$	19.3 ± 2.8
Density (stems/ha)	350 ± 279	150 ± 92	488 ± 391	200 ± 1271	740 ± 162	100 ± x	418 ± 131

Ecological Interpretation

These ecosites commonly exist as mixedwoods although they may grade into more of a pure hardwood condition. In the absence of disturbance, these ecosites may more closely resemble the conditions associated with BP9 or BP13 depending upon the amount of balsam fir that was on the site previously. Balsam fir is shade tolerant and able to germinate, establish, and grow in the shade of other trees. Following disturbance, it is possible for the ecosite to more closely resemble BP6 or BP7 although they may return to the BP10 condition if the white spruce component was maintained.

BP11 White birch - white spruce - balsam fir: Fresh sandy clay loam



Ecosite Description (n = 24)

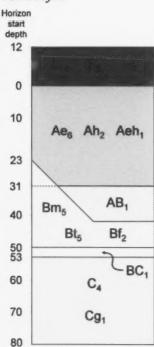
BP11 ecosites usually have white birch as the leading species in the canopy, accompanied by white spruce, balsam fir, and occasionally trembling aspen. The shrub understory is somewhat diverse but is not particularly plentiful although balsam fir is apparent. The herbaceous layer is also relatively diverse and sarsaparilla is prevalent. The moss and lichen coverage on BP11 is quite low but the leaf litter is abundant.

Layer (Richness)	Common name	% constancy	% cover	Latin name
tree (3.6)	white birch	100	49	Betula papyrifera
	white spruce	75	21	Picea glauca
	balsam fir	67	15	Abies balsamea
	trembling aspen	50	13	Populus tremuloides
shrub (5.8)	prickly rose	79	1	Rosa acicularis
	low bush-cranberry	75	1	Viburnum edule
	balsam fir	62	13	Abies balsamea
	red currant	58	0.6	Ribes triste
	northern gooseberry	42	0.6	Ribes oxyacanthoides
herb (14.4)	wild sarsaparilla	88	8	Aralia nudicaulis
	bunchberry	79	6	Cornus canadensis
	twinflower	79	1	Linnaea borealis
	bishop's cap	67	1	Mitella nuda
	dewberry	63	3	Rubus pubescens
	starflower	6.3	0.8	Trientalis borealis
	palmate-leaved coltsfoot	58	1	Petasites palmatus
	tall lungwort	58	1	Mertensia paniculata
	kidney-leaved violet	54	0.4	Viola renifolia
	sweet-scented bedstraw	50	0.6	Galium triflorum
	pink wintergreen	50	0.6	Pyrola asarifolia
	wild lily-of-the-valley	50	0.5	Maianthemum canadense

BP11 White birch - white spruce - balsam fir: Fresh sandy clay loam

Layer (Richness)	Common name	% constancy	% cover	Latin name
herb (14.4)	one-sided wintergreen	46	0.3	Orthilia secunda
	grasses	42	0.5	Graminoid spp.
	common horsetail	42	0.5	Equisetum arvense
moss & lichen	Schreber's moss	79	2	Pleurozium schreberi
(21.9)	other mosses	75	3	
	stair-step moss	71	3	Hylocomium splendens
	knight's plume	67	0.9	Ptilium crista-castrensis
	cup and spike lichens	58	0.4	Cladonia spp.
ground cover	needle litter	71	7	
	woody debris	100	12	
	leaf litter	100	71	-

Soil Profile



Site Features

Soil Great Group - Order	Gray Luvisols
	Eutric Brunisol ₂
	Humic Gleysol
Parent Material	Fluvial ₄
	Lacustrine ₂
	Morainal ₂
	Organic ₁
Moisture Regime	Fresh ₄
	Very Moist ₂
	Moist ₁
	Very Fresh
	Moderately Dry
Drainage	Well ₄
	Imperfect ₄
	Moderately Well
	Rapidı
	Poor _i
Slope	$(0-0.5)_6$
	(2-5)2
	(5-9)1
Topographic Position	Level ₃
	Mid-Slope ₁
	Lower Slope
	Upper Slope
	Toe Slope
Aspect	No Aspects
	East ₂
	North

BP11 White birch - white spruce - balsam fir: Fresh sandy clay loam

Aspect	South ₁		nonyms
	West ₁	Taiga Shield	Boreal Shield
Surface Texture	Sand ₂	NA	NA
	Sandy Loam ₂ Loamy Sand ₁ Silty Loam ₁	Boreal Plain	Prairie NA
Effective Texture	Sandy Clay Loam ₃ Sand ₁ Sandy Clay ₁		
	Clay.		

Forest Productivity

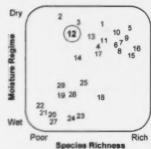
		Tree Specie			es		
	bF	bP	bS	jP	tA	wB	wS
Site Index	15.3 ± 2.3	16.8 ±	15.1 ± 24.5	13.2 ± x	15.8 ±	14.4 ± 1.4	13.4 ± 2.1
(m at 50 years))	18.4			2.5		
Volume	41.2 ±	62.4 ±	68.7 ± 359	$18.2 \pm x$	42.7 ±	78.9 ±	72.5 ± 37.3
(m³/ha)	30.4	537			33.6	20.6	
MAI	0.63 ±	0.93 ±	1.04 ± 5	$0.29 \pm x$	0.7 ± 0.61	1.04 ±	1.16 ± 0.43
(m3/ha/yr)	0.57	7.63				0.24	
Basal Area	8.6 ± 6.9	9.8 ±	12.3 ±	$2.7 \pm x$	5.7 ± 3.5	13 ± 2.8	10 ± 4.7
(m ² /ha)		86.9	49.9				
Age (years)	49 ± 7	70 ± 8	62 ± 17	71 ± 172	65 ± 8	67 ± 7	89 ± 14
Height (m)	11.5 ± 1.7	19 ± 10.4	12.8 ± 17.8	$16.3 \pm x$	16.3 ± 4	15.2 ± 1.5	14.2 ± 3.4
D.B.H. (cm)	12.7 ± 1.8	22.7 ± 40	14.7 ± 42.9	$18.5 \pm x$	20.4 ± 6	16 ± 2.3	18.4 ± 4.1
Density	582 ± 365	200 ±	700 ±	100 ± x	190 ± 133	765 ±	281 ± 112
(stems/ha)		1271	1271			248	

Ecological Interpretation

BP11 can occur in either a mixedwood or a hardwood condition. It may sometimes be confused with BP13 if the balsam fir component is relatively high. However, BP11 is distinguished from BP13 by having more white birch and far less feathermoss. In the absence of disturbance, these ecosystems may more closely resemble the conditions associated with BP13 or BP9 ecosites depending upon the quantities of balsam fir or trembling aspen previously on the site. Following disturbance, the BP11 ecosite may more closely resemble BP6 or BP7.

BP12 | Jack pine - spruce/feathermoss: Fresh loamy sand





Ecosite Description (n = 27)

BP12 ecosites typically have jack pine dominated canopies mixed with varying amounts of black and/or white spruce. The understory shrubs are ericaceous and mixed with small amounts of green alder, prickly rose, and willow. The forest floor is typically covered with a near continuous carpet of feathermosses.

Layer (Richness)	Common name	% constancy	% cover	Latin name
tree (3.4)	jack pine	100	37	Pinus banksiana
	black spruce	78	23	Picea mariana
	white spruce	44	19	Picea glauca
shrub (4.9)	blueberry	74	4	Vaccinium myrtilloides
	lingonberry	74	2	Vaccinium vitis-idaea
	Labrador tea	70	11	Ledum groenlandicum
	black spruce	67	3	Picea mariana
	green alder	52	8	Alnus viridis
	prickly rose	44	3	Rosa acicularis
	willows	41	0.9	Salix spp.
herb (7.2)	twinflower	78	2	Linnaea borealis
	bunchberry	59	4	Cornus canadensis
	grasses	52	0.4	Graminoid spp.
	wild lily-of-the-valley	44	4	Maianthemum canadense
moss & lichen	Schreber's moss	100	51	Pleurozium schreberi
(22.3)	stair-step moss	93	7	Hylocomium splendens
	knight's plume	89	4	Ptilium crista-castrensis
	Dicranum moss	78	0.8	Dicranum spp.
	other mosses	74	1	
	cup and spike lichens	81	2	Cladonia spp.
	other lichens	67	1	
	green reindeer lichen	48	2	Cladina mitis
ground cover	needle litter	100	14	
	woody debris	100	11	

BP12 | Jack pine - spruce/feathermoss: Fresh loamy sand

Layer (Richnes	ss) Common name	% constancy	% cover	Latin name
ground cover	leaf litter	96	13	-
Soil Profile		Site Features		
Horizon start depth	the administrative and the second	Soil Great Group	- Order	Eutric Brunisols Gray Luvisols Luvic Gleysol Dystric Brunisol
0	Ae ₉	Parent Material		Fluvial ₆ Morainal ₃ Lacustrine ₁
10 15 20	Aeh ₁	Moisture Regime	•	Very Fresh ₂ Fresh ₂ Moderately Fresh ₂
30	Bm ₇ Bt ₂			Very Moist ₁ Moist ₁ Moderately Dry ₁
35 40 50	BC ₃	Drainage		Imperfect ₃ Moderately Well ₂ Well ₂ Rapid ₁ Very Rapid ₁
59	C ₄	Slope		(0-0.5) ₆ (2-5) ₂ (5-9) ₁
70	Cg ₂	Topographic Posi	ition	Level ₆ Mid-Slope ₂ Upper Slope ₁
Ecozonal Sy	nonyms Boreal Shield	Aspect		No Aspect ₆ West ₃ East ₁
NA Boreal Plain	BS4 + BS5 + BS9 Prairie NA	Surface Texture		Sands Loamy Sands Sandy Loams
	1971	Effective Texture		Sand ₂

Loamy Sand₂ Sandy Clay Loam₂ Sandy Loam₁ Sandy Clay₁

BP12 | Jack pine - spruce/feathermoss: Fresh loamy sand

Forest Produ	ıctivity	Tree Species				
	bP	bS	jP	tA	wB	wS
Site Index (m at 50 years)	•	13.4 ± 1.2	14.5 ± 0.8	11.2 ± 3.3	12 ± x	15.5 ± 1.7
Volume (m3/ha)		38.4 ± 16.1	140.4 ± 26.2	18.9 ± 126	3.7 ± 47.2	68.4 ± 47.4
MAI (m3/ha/yr)		0.54 ± 0.22	1.82 ± 0.33	0.31 ± 2.09	$0.12 \pm x$	0.9 ± 0.49
Basal Area (m²/ha)	$0.5 \pm x$	7.3 ± 2.2	20.7 ± 3.3	4 ± 26.1	1.2 ± 8.2	9.7 ± 5
Age (years)	-	79 ± 7	81 ± 7	90 ± 39	50 ± 83	73 ± 11
Height (m)	$4.4 \pm x$	11.7 ± 1.5	16.2 ± 1.3	12 ± 1.1	10.5 ± 11.1	15.2 ± 4.2
D.B.H. (cm)	$8.3 \pm x$	12.8 ± 2	17.6 ± 2.2	9.7 ± 7.8	9.8 ± 14.6	20.9 ± 7.3
Density (stems/ha)	100 ± x	562 ± 154	1059 ± 267	500 ± 2541	150 ± 635	290 ± 145

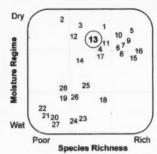
Ecological Interpretation

These ecosites are similar in nature to BP3 ecosites except that BP12 ecosites have a conspicuous canopy of black or white spruce. In the absence of disturbance it is possible that the pine component of the canopy will decrease while the spruce component increases but without changing the ecosite's classification. Following disturbance, these ecosites may more closely resemble BP3 or BP4 ecosites depending upon how much aspen was previously on the site. Green alder, which is found on this site, is capable of biologically fixing nitrogen in its root nodules because of the symbiotic relationship it has with the *Frankia* actinobacteria.



BP13 White spruce - balsam fir/feathermoss: Fresh sandy clay loam





Ecosite Description (n = 45)

BP13 ecosites are mostly (66% of the sites) either white spruce and/or balsam fir dominated conifer stands. The remainder of the time they are usually white spruce dominated mixedwoods. The shrub layer (aside from tree species) is relatively sparse and the herb layer while somewhat diverse is sporadic. Feathermosses are apparent amongst the extensive cover of leaf and needle litter on the forest floor.

Layer (Richness)	Common name	% constancy	% cover	Latin name
tree (3.9)	white spruce	89	33	Picea glauca
	balsam fir	89	29	Abies balsamea
	trembling aspen	69	19	Populus tremuloides
	white birch	56	13	Betula papyrifera
	balsam poplar	42	12	Populus balsamifera
shrub (4.2)	balsam fir	89	6	Abies balsamea
	prickly rose	69	3	Rosa acicularis
	low bush-cranberry	69	2	Viburnum edule
	trembling aspen	51	0.8	Populus tremuloides
	white birch	47	2	Betula papyrifera
herb (12.4)	twinflower	93	2	Linnaea borealis
	bunchberry	91	2	Cornus canadensis
	bishop's cap	82	1	Mitella nuda
	starflower	78	0.6	Trientalis borealis
	wild sarsaparilla	71	3	Aralia nudicaulis
	dewberry	67	1	Rubus pubescens
	wild lily-of-the-valley	62	0.6	Maianthemum canadense
	palmate-leaved coltsfoot	53	1	Petasites palmatus
	tall lungwort	51	2	Mertensia paniculata
moss & lichen	stair-step moss	100	11	Hylocomium splendens
(20.8)	Schreber's moss	100	10	Pleurozium schreberi
	other mosses	84	4	

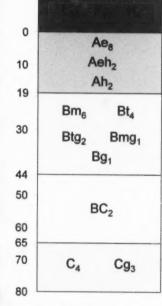
BP13 White spruce - balsam fir/feathermoss: Fresh sandy clay loam

Layer (Richness)	Common name	% constancy	% cover	Latin name
	knight's plume	80	2	Ptilium crista-castrensis
	cup and spike lichens	71	0.5	Cladonia spp.
ground cover	needle litter	78	9	
	woody debris	96	16	
	leaf litter	100	45	

Soil Profile

Horizon
start
depth





Ecozonal Synonyms

Taiga Shield	Boreal Shield
NA	BS11
Boreal Plain	Prairie
	NA

Site Features

Soil Great Group - Order	Gray Luvisols
	Eutric Brunisol ₄
Parent Material	Fluvial3
	Lacustrine ₃
	Morainal ₃
Moisture Regime	Fresh ₅
	Very Fresh
	Moderately Fresh
	Moist ₁
	Very Moist ₁
Drainage	Well ₅
	Moderately Well ₂
	Imperfect ₂
	Rapidı
Slope	(0-0.5)4
	$(0.5-2)_2$
	$(2-5)_2$
	$(5-9)_1$
Topographic Position	Level ₃
	Mid-Slope

Topographic Position (5-9) Levels Mid-Slope2 Upper Slope2 Lower Slope2 Crest No Aspects Easts West2

East ₃
West ₂
North ₁
South ₁
Loamy Sand ₂
Silty Loam ₂
Sandı

Sandy Loam₁ Loam₁ Silt₁

BP13 White spruce - balsam fir/feathermoss:

Effective Texture

Sandy Clay Loam₃ Clay Loam₂ Silty Clay₁ Sandy Loam₁ Loamy Sand₁ Silty Loam₁

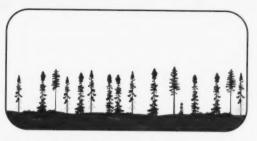
Forest Productivity

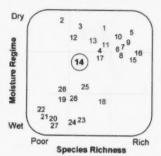
rorest rrot	iuciiviiy	Tree Species					
	bF	ЬP	bS	jР	tA	wB	wS
Site Index (m at 50 years)	15.2 ± 1.8	17.8 ± 2.6	12.5 ± 3.2	19 ± x	18 ± 1.5	15.7 ± 3.3	14.8 ± 0.9
Volume (m³/ha)	53.4 ± 21.6	69.2 ± 37.5	105 ± 203	$16.8 \pm x$	109.7 ± 43.6	69.1 ± 71.4	203.2 ± 51.9
MAI (m³/ha/yr)	0.81 ± 0.37	0.89 ± 0.41	1.12 ± 2.8	$0.22 \pm x$	1.22 ± 0.42	0.74 ± 0.71	2.12 ± 0.56
Basal Area (m²/ha)	8.5 ± 2.9	10.3 ± 5	16.6 ± 35	$2.4 \pm x$	12.8 ± 4.4	9.6 ± 7.8	24.3 ± 5.2
Age (years)	61 ± 6	69 ± 12	114 ± 36	56 ± 25	87 ± 10	81 ± 17	100 ± 6
Height (m)	12.4 ± 1.2	17.5 ± 2.5	14.7 ± 4	$16.9 \pm x$	19.7 ± 1.8	15.3 ± 2.5	18.5 ± 1.5
D.B.H. (cm)	13.2 ± 1.6	21.2 ± 4.6	15 ± 3.8	$17.3 \pm x$	25.5 ± 4.8	21.3 ± 5.9	23.2 ± 2.4
Density (stems/ha)	552 ± 180	270 ± 117	967 ± 2387	100 ± x	260 ± 85	240 ± 159	573 ± 123

Ecological Interpretation

While this ecosite is usually classed as a conifer condition, it can also grade into the mixedwood condition. Their relatively high proportion of both balsam fir and feathermoss distinguish them from other ecosites. After disturbance there are a number of successional paths that this ecosite may follow. Typically, BP13 will closely resemble a BP6 ecosite after disturbance; however, it may resemble the BP5 if bearberry, golden-bean, bluebell, goldenrod and/or common yarrow are present. If the balsam poplar content prior to disturbance is sufficient, this site may come to resemble a BP16 ecosite. In the absence of disturbance, this site may stay as a BP13 but with a reduced hardwood component and an increased shrub component, with the long-term possibility of the stand succeeding to dominance by balsam fir, a shade-tolerant conifer.

BP14 Black spruce/Labrador tea/feathermoss: Very moist sandy clay loam





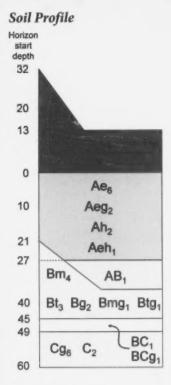
Ecosite Description (n = 66)

BP14 ecosites typically have black spruce dominated canopies which may contain jack pine, white spruce or trembling aspen. Over 80% of the sites classified as BP14 will be a conifer site. The understory of this ecosite is generally limited to ericaceous shrubs but low bush-cranberry, and green alder may occasionally be found. While a great variety of herbs is associated with this ecosite, only a few species occur with any constancy. The forest floor generally has a continuous carpet of feathermoss mixed with abundant needle and leaf litter. While moist mineral soils are associated with this ecosite, the occurrence of an organic soil is possible, but not common.

Layer (Richness)	Common name	% constancy	% cover	Latin name
tree (2.7)	black spruce	100	42	Picea mariana
	jack pine	44	13	Pinus banksiana
shrub (5.0)	Labrador tea	70	9	Ledum groenlandicum
	blueberry	67	3	Vaccinium myrtilloides
	lingonberry	65	2	Vaccinium vitis-idaea
	prickly rose	59	1	Rosa acicularis
	black spruce	58	3	Picea mariana
herb (9.2)	bunchberry	68	2	Cornus canadensis
	twinflower	58	1	Linnaea borealis
	palmate-leaved	42	2	Petasites palmatus
	coltsfoot			
	dewberry	42	1	Rubus pubescens
moss & lichen	Schreber's moss	95	46	Pleurozium schreberi
(18.9)	stair-step moss	94	9	Hylocomium splendens
	knight's plume	76	1	Ptilium crista-castrensi
	Dicranum moss	64	0.9	Dicranum spp.
	other mosses	64	1	
	cup and spike lichens	70	0.5	Cladonia spp.
	other lichens	54	2	
	green reindeer lichen	42	4	Cladina mitis
ground cover	needle litter	82	10	-
	woody debris	98	12	-
	leaf litter	86	19	-

BP14

Black spruce/Labrador tea/feathermoss: Very moist sandy clay loam



Ecozonal Synonyms

Taiga Shield	Boreal Shield				
TS4	BS9 + BS10				
Boreal Plain	Prairie				
*	NA				

Site Features

Effective Texture

Soil Great Group - Order	Gleysols				
	Gray Luvisol2				
	Eutric Brunisol ₂				
	Luvic Gleysol				
Parent Material	Fluvial ₅				
	Lacustrine ₂				
	Morainal ₂				
Moisture Regime	Very Moist ₄				
	Fresh ₂				
	Very Fresh				
	Moderately Moist				
	Moist ₁				
Drainage	Imperfect ₄				
	Moderately Well ₂				
	Welli				
	Poor				
	Very Poor				
Slope	$(0-0.5)_8$				
	(0.5-2)2				
Topographic Position	Levels				
	Upper Slope				
Aspect	No Aspecta				
	South ₁				
Surface Texture	Loamy Sands				
	Sand ₂				
	Sandy Loam ₂				

Silty Loam

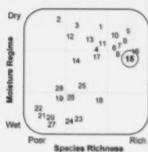
BP14 Black spruce/Labrador tea/feathermoss: Very moist sandy clay loam

Forest Prod	luctivity			Tree S	pecies			
	bF	bP	bS	jP	tA	tL	wB	wS
Site Index	12.6 ±	17.1 ±	11.9 ±	13 ± 1.2	15.3 ± 2	12.1 ± x	13 ± 0.7	14.8 ±
(m at 50 years)	40.7	15.9	0.8					1.9
Volume	1.5 ± 19.4	44.7 ±	99 ± 21.7	55.1 ±	77.2 ±	25.5 ±	14.6 ±	77.3 ±
(m³/ha)		39.4		20.8	38.5	46.7	16.1	34.6
MAI	$0.03 \pm x$	0.53 ±	1.26 ±	0.76 ±	1.08 ±	0.4 ±	0.3 ±	0.99 ±
(m³/ha/yr)		0.38	0.24	0.25	0.44	0.8	0.29	0.48
Basal Area	0.7 ± 1.4	7.4 ±	18.1 ±	9.5 ±	11.1 ±	4.7 ± 11	3.1 ±	11.6 ±
(m²/ha)		5.3	3.1	2.9	4.7		3.1	4.8
Age (years)	56 ± 42	73 ± 4	84 ± 4	72 ± 7	69 ± 10	55 ± 13	49 ± 8	77 ± 12
Height (m)	9.4 ± 8.3	17.6 ±	12 ± 0.7	13.7 ±	15.3 ± 2	14.1 ±	11.6 ±	14.2 ±
		4.4		1.5		14.9	1.9	2.3
D.B.H. (cm)	9.3 ± 9.5	20.5 ±	12.7 ±	17.5 ±	18.4 ±	14.7 ±	10.8 ±	17 ±
		7.9	0.8	2.7	3.9	15	2.2	3.6
Density	$100 \pm x$	280 ±	1416 ±	488 ±	406 ±	333 ±	280 ±	444 ±
(stems/ha)		309	252	174	144	1004	204	197

Ecological Interpretation

BP14 ecosites tend to be rather moist. It is not unusual to find them adjacent to treed bogs (BP19). Following disturbance, these sites may retain their pre-disturbance tree composition provided they were in a pure conifer condition or they may move toward a BP19 ecosite condition if the site's moisture regime was affected. For BP14 ecosites with a hardwood component they may exhibit similarities to the BP6 or BP7 ecosites if the aspen component was high; however, the moisture regime may lessen the likelihood of this shift. In the absence of disturbance, the BP14 ecosite may not change dramatically in condition or composition, although the jack pine component will eventually decrease.





Ecosite Description (n = 5)

BP15 ecosites generally have a canopy that has balsam poplar leading in combination with white and/or black spruce. Trembling aspen, white birch, and/or balsam fir may occasionally also occur in the canopy. Both the shrub and herb layers tend to be diverse and a conspicuous layer of feathermosses is apparent above the layer of leaf litter.

Layer (Richness)	Common name	% constancy	% cover	Latin name
tree (4.2)	balsam poplar	100	29	Populus balsamifera
	white spruce	100	18	Picea glauca
	white birch	60	9	Betula papyrifera
	trembling aspen	60	8	Populus tremuloides
	balsam fir	40	8	Abies balsamea
	black spruce	40	8	Picea mariana
shrub (6.6)	low bush-cranberry	100	4	Viburnum edule
	prickly rose	100	3	Rosa acicularis
	northern gooseberry	80	0.2	Ribes oxyacanthoides
	white spruce	60	4	Picea glauca
	Saskatoon	60	0.6	Amelanchier alnifolia
	beaked hazel	40	6	Corylus cornuta
	red currant	40	0.9	Ribes triste
	common snowberry	40	0.9	Symphoricarpos albus
	twining honeysuckle	40	0.3	Lonicera dioica
herb (20.0)	bunchberry	100	6	Cornus canadensis
	dewberry	100	5	Rubus pubescens
	palmate-leaved coltsfoot	100	3	Petasites palmatus
	wild sarsaparilla	100	3	Aralia nudicaulis
	bishop's cap	100	2	Mitella nuda
	tall lungwort	100	0.8	Mertensia paniculata
	starflower	100	0.7	Trientalis borealis
	wild strawberry	80	6	Fragaria virginiana
	twinflower	80	1	Linnaea borealis

BP15 Balsam poplar - white spruce/feathermoss: Very moist silty loam

Layer (Richness)	Common name	% constancy	% cover	Latin name
herb (20.0)	wild lily-of-the-valley	80	0.9	Maianthemum canadense
	pink wintergreen	80	0.4	Pyrola asarifolia
	kidney-leaved violet	80	0.3	Viola renifolia
	American vetch	60	1	Vicia americana
	grasses	60	0.7	Graminoid spp.
	sweet-scented bedstraw	60	0.6	Galium triflorum
	creamy peavine	60	0.4	Lathyrus ochroleucus
	northern bedstraw	60	0.3	Galium boreale
	red and white baneberry	40	0.5	Actaea rubra
	lesser rattlesnake- plantain	40	0.4	Goodyera repens
	western Canada violet	40	0.3	Viola canadensis
moss & lichen	Schreber's moss	80	2	Pleurozium schreberi
(19.0)	other mosses	80	0.9	
	stair-step moss	80	19	Hylocomium splendens
	Dicranum moss	60	0.8	Dicranum spp.
	knight's plume	60	0.4	Ptilium crista-castrensis
	cup and spike lichens	40	0.4	Cladonia spp.
ground cover	needle litter	60	3	
	woody debris	80	11	
	leaf litter	100	38	

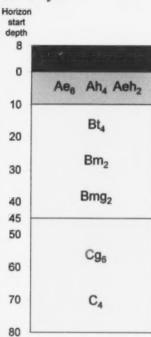
Ecozonal Synonyms

Taiga Shield	Boreal Shield	Boreal Plain	Prairie
NA	NA		NA

BP15

Balsam poplar - white spruce/feathermoss: Very moist silty loam

Soil Profile



Site Features

Effective Texture

Soil Great Group - Order	Eutric Brunisol ₆ Gray Luvisol ₂ Folisol Organic ₂
Parent Material	Fluvial ₄
	Glacio-lacustrine2
	Lacustrine ₂
	Organic ₂
Moisture Regime	Very Moist ₄
	Moderately Moist2
	Fresh ₂
	Moderately Dry ₂
Drainage	Imperfect ₄
	Poor ₂
	Well ₂
	Rapid ₂
Slope	$(0.5-2)_4$
	(2-5)4
	$(0-0.5)_2$
Topographic Position	Lower Slope ₁
	Level ₂
	Mid-Slope ₂
	Toe Slope ₂
Aspect	North ₄
	East ₄
	No Aspect ₂
Surface Texture	Sand ₂
	Silty Sand ₂
	Sandy Loam ₂
	Silty Loam ₂

Sandy Loam₃ Silty Loam₃ Clay Loam₃ Silty Clay₃

BP15 Balsam poplar - white spruce/feathermoss: Very moist silty loam

bF 19.2 ± x	bP	bS				
$19.2 \pm x$			jР	tA	wB	wS
	14.9 ± 3.2	$7.8 \pm x$	$14.7 \pm x$	18.3 ± 38.1	12 ± x	14.3 ± 2.8
$6.7 \pm x$	70.1 ± 126.8	44.1 ± x	39.8 ± x	22.2 ± 152.3	$11.5 \pm x$	24.4 ± 55.5
$0.05 \pm x$	0.89 ± 1.67	$0.3 \pm x$	$0.57 \pm x$	0.31 ± 2.32	$0.15 \pm x$	0.39 ±
1.4 ± x	10.5 ± 17.9	$6.5 \pm x$	$6.3 \pm x$	3.2 ± 12.4	2 ± x	3.6 ± 7.1
31 ± 25	81 ± 18	194 ± 83	96 ± 19	40 ± 23	95 ± 241	65 ± 26
$11.6 \pm x$	17.7 ± 5.6	$17.9 \pm x$	16.1 ± x	14.7 ± 31.4	15 ± x	13.8 ± 12
$13.5 \pm x$	19.4 ± 7.4	$28.7 \pm x$	19.6 ± x	12.3 ± 35	16 ± x	15 ± 12.7
100 ± x	320 ± 476	100 ± x	200 ± x	250 ± 635	100 ± x	150 ± 92
	$6.7 \pm x$ $0.05 \pm x$ $1.4 \pm x$ 31 ± 25 $11.6 \pm x$ $13.5 \pm x$	$\begin{array}{ccc} & 3.2 \\ 6.7 \pm x & 70.1 \pm \\ & 126.8 \\ 0.05 \pm x & 0.89 \pm \\ & 1.67 \\ 1.4 \pm x & 10.5 \pm \\ & 17.9 \\ 31 \pm 25 & 81 \pm 18 \\ 11.6 \pm x & 17.7 \pm 5.6 \\ 13.5 \pm x & 19.4 \pm 7.4 \\ 100 \pm x & 320 \pm \\ \end{array}$	$\begin{array}{cccccccccccccccccccccccccccccccccccc$	$\begin{array}{cccccccccccccccccccccccccccccccccccc$	$\begin{array}{cccccccccccccccccccccccccccccccccccc$	$\begin{array}{cccccccccccccccccccccccccccccccccccc$

Ecological Interpretation

This ecosite has a consistently high diversity of shrub and herb species and will also support a wide variety of tree species. Following disturbance, these ecosites may return to their former condition although they may also resemble BP6 or BP7 if their previous stand condition had sufficient aspen. In the absence of disturbance, these ecosites may more closely resemble BP9 or BP13 as succession unfolds.

BP16

Balsam poplar - trembling aspen/prickly rose: Fresh clay loam



Ecosite Description (n = 14)

BP16 ecosites have deciduous canopies with either balsam poplar or trembling aspen as the leading species. Black and/or white spruce, balsam fir or white birch may also occur, but in minor proportions. Both the shrub and herbaceous layers tend to be diverse. Moss and lichen cover is low and leaf litter covers much of the forest floor.

Characteristic Species

Layer (Richness)	Common name	% constancy	% cover	Latin name
tree (3.1)	balsam poplar	100	36	Populus balsamifera
	trembling aspen	86	38	Populus tremuloides
	white spruce	43	8	Picea glauca
shrub (9.4)	prickly rose	100	10	Rosa acicularis
	willows	86	4	Salix spp.
	northern gooseberry	79	0.5	Ribes oxyacanthoides
	river alder	57	11	Alnus incana
	raspberry	57	2	Rubus idaeus
	beaked hazel	50	4	Corylus cornuta
	red-osier dogwood	43	12	Cornus sericea
	white spruce	43	6	Picea glauca
	low bush-cranberry	43	3	Viburnum edule
	twining honeysuckle	43	2	Lonicera dioica
	red currant	43	1	Ribes triste
herb (19.6)	dewberry	86	2	Rubus pubescens
	sedges	79	2	Carex spp.
	wild strawberry	79	1	Fragaria virginiana
	northern bedstraw	79	0.3	Galium boreale
	wild sarsaparilla	71	10	Aralia nudicaulis
	common horsetail	71	3	Equisetum arvense
	wild lily-of-the-valley	71	0.6	Maianthemum canadense
	tall lungwort	64	3	Mertensia paniculata
	palmate-leaved coltsfoot	64	2	Petasites palmatus

BP16 Balsam poplar - trembling aspen/prickly rose: Fresh clay loam

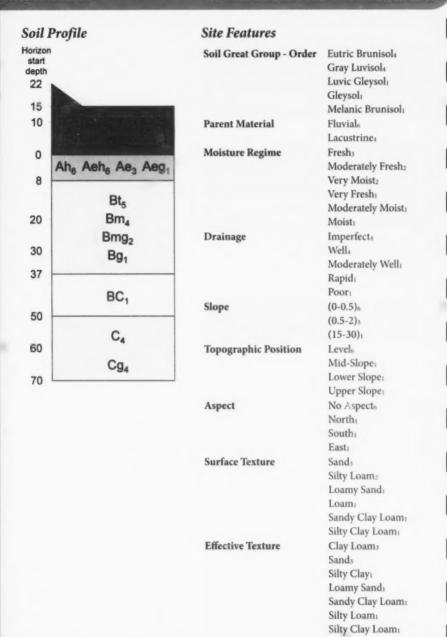
Layer (Richness)	Common name	% constancy	% cover	Latin name
herb (19.6)	bishop's cap	57	2	Mitella nuda
	sweet-scented bedstraw	57	0.3	Galium triflorum
	bunchberry	50	2	Cornus canadensis
	western Canada violet	50	0.9	Viola canadensis
	star-flowered Solomon's seal	50	0.6	Maianthemum stellatum
	common dandelion	50	0.3	Taraxacum officinale
	asters	43	0.9	Aster spp.
	pink wintergreen	43	0.6	Pyrola asarifolia
	fireweed	43	0.5	Chamerion angustifolium
	common yarrow	43	0.4	Achillea millefolium
	American vetch	43	0.3	Vicia americana
moss & lichen	other mosses	71	6	
(10.9)	other lichens	43	0.5	
ground cover	woody debris	79	15	
	leaf litter	100	72	

Ecozonal Synonyms

Taiga Shield	Boreal Shield	Boreal Plain	Prairie
NA	NA	-	NA

BP16

Balsam poplar - trembling aspen/prickly rose: Fresh clay loam



BP16 Balsam poplar - trembling aspen/prickly rose: Fresh clay loam

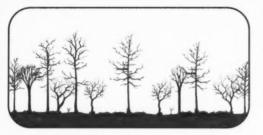
ctivity					
		Tree	Species		
bF	bP	bS	tA	wB	wS
25.1 ± x	18.9 ± 1.7	-	16.1 ± 4.3	$12.7 \pm x$	11 ± 6.4
$17 \pm x$	109.1 ± 71.5	$8.5 \pm x$	98.8 ± 68.9	$4.9 \pm x$	60.4 ± 159.8
$0.41 \pm x$	1.91 ± 1.19	$0.11 \pm x$	1.2 ± 0.92	$0.08 \pm x$	1.42 ± 1.52
4 ± x	17.6 ± 10.1	$1.5 \pm x$	14.5 ± 10.4	$1.1 \pm x$	10 ± 21.4
36 ± 19	65 ± 11	91 ± x	66 ± 16	63 ± 6	85 ± 90
$10.7 \pm x$	16.2 ± 3.1	$13.3 \pm x$	15.3 ± 2.3	$11.7 \pm x$	13.1 ± 13.9
12.9 ± x	22.3 ± 7.6	14 ± x	16.2 ± 3.3	$11.8 \pm x$	21.3 ± 22.6
300 ± x	509 ± 269	100 ± x	663 ± 495	100 ± x	200 ± 248
	bF $25.1 \pm x$ $17 \pm x$ $0.41 \pm x$ $4 \pm x$ 36 ± 19 $10.7 \pm x$ $12.9 \pm x$	bF bP $25.1 \pm x$ 18.9 ± 1.7 $17 \pm x$ 109.1 ± 71.5 $0.41 \pm x$ 1.91 ± 1.19 $4 \pm x$ 17.6 ± 10.1 36 ± 19 65 ± 11 $10.7 \pm x$ 16.2 ± 3.1 $12.9 \pm x$ 22.3 ± 7.6	Tree bF bP bS $25.1 \pm x 18.9 \pm 1.7$ - $17 \pm x 109.1 \pm 71.5 8.5 \pm x$ $0.41 \pm x 1.91 \pm 1.19 0.11 \pm x$ $4 \pm x 17.6 \pm 10.1 1.5 \pm x$ $36 \pm 19 65 \pm 11 91 \pm x$ $10.7 \pm x 16.2 \pm 3.1 13.3 \pm x$ $12.9 \pm x 22.3 \pm 7.6 14 \pm x$	Tree Species bF bP bS tA $25.1 \pm x 18.9 \pm 1.7 - 16.1 \pm 4.3$ $17 \pm x 109.1 \pm 71.5 8.5 \pm x 98.8 \pm 68.9$ $0.41 \pm x 1.91 \pm 1.19 0.11 \pm x 1.2 \pm 0.92$ $4 \pm x 17.6 \pm 10.1 1.5 \pm x 14.5 \pm 10.4$ $36 \pm 19 65 \pm 11 91 \pm x 66 \pm 16$ $10.7 \pm x 16.2 \pm 3.1 13.3 \pm x 15.3 \pm 2.3$ $12.9 \pm x 22.3 \pm 7.6 14 \pm x 16.2 \pm 3.3$	Tree Species bF bP bS tA wB $25.1 \pm x 18.9 \pm 1.7 - 16.1 \pm 4.3 12.7 \pm x$ $17 \pm x 109.1 \pm 71.5 8.5 \pm x 98.8 \pm 68.9 4.9 \pm x$ $0.41 \pm x 1.91 \pm 1.19 0.11 \pm x 1.2 \pm 0.92 0.08 \pm x$ $4 \pm x 17.6 \pm 10.1 1.5 \pm x 14.5 \pm 10.4 1.1 \pm x$ $36 \pm 19 65 \pm 11 91 \pm x 66 \pm 16 63 \pm 6$ $10.7 \pm x 16.2 \pm 3.1 13.3 \pm x 15.3 \pm 2.3 11.7 \pm x$ $12.9 \pm x 22.3 \pm 7.6 14 \pm x 16.2 \pm 3.3 11.8 \pm x$

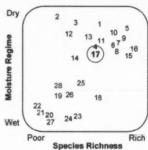
Ecological Interpretation

While these ecosites tend to be relatively species rich, they are not as moist as one might expect given the presence of balsam poplar in the overstory. In the absence of disturbance these sites may migrate toward the condition seen in BP13. Following disturbance, these ecosites may be expected to remain as a BP16 ecosite but possibly with a slightly greater proportion of trembling aspen.

BP17

Manitoba maple - balsam poplar/ostrich fern: Moist silty clay loam





Ecosite Description (n = 38)

All BS17 ecosites have Manitoba maple in the canopy. In addition to the maple, they may have balsam poplar, white elm, green ash and/or trembling aspen in any number of possible combinations. Both the shrub and herbaceous layers tend to be diverse, but ostrich fern is the species most commonly encountered in any substantial quantity. Mosses and lichens do exist on these ecosites but their cover value is relatively low. As expected the leaf litter is high on these ecosites.

Characteristic Species

Layer (Richness)	Common name	% constancy	% cover	Latin name
tree (3.4)	Manitoba maple	100	23	Acer negundo
	balsam poplar	58	22	Populus balsamifera
	white elm	47	14	Ulmus americana
	green ash	26	11	Fraxinus pennsylvanica
shrub (6.7)	choke cherry	66	2	Prunus virginiana
	raspberry	63	4	Rubus idaeus
	high bush-cranberry	61	3	Viburnum opulus
	red-osier dogwood	53	3	Cornus sericea
	prickly rose	50	2	Rosa acicularis
	northern black currant	42	0.6	Ribes hudsonianum
	white elm	34	0.3	Ulmus americana
	Manitoba maple	29	5	Acer negundo
	green ash	8	0.7	Fraxinus pennsylvanica
herb (12.2)	sweet-scented bedstraw	82	0.4	Galium boreale
	ostrich fern	76	40	Matteuccia struthiopteris
	dewberry	76	1	Rubus pubescens
	wild sarsaparilla	71	3	Aralia nudicaulis
	common horsetail	68	11	Equisetum arvense
	bishop's cap	58	2	Mitella nuda
	tall lungwort	50	2	Mertensia paniculata
	sedges	50	0.5	Carex spp.
	early blue violet	45	2	Viola adunca

BP17 Manitoba maple - balsam poplar/ostrich fern: Moist silty clay loam

Layer (Richness)	Common name	% constancy	% cover	Latin name
herb (12.2)	small enchanter's - nightshade	42	2	Circaea alpina
moss & lichen (4.8)				
ground cover	leaf litter	100	77	-
	woody debris	100	11	

Soil Prof	ìle
Horizon start depth	
12	and the state of t
0	Charles and the second of the
4	<u> </u>
10	Ah ₂ Ae ₁
20	Bm ₁
31	
40	
	C ₆
50	
60	Cg_2
70	
00	

Ecozonal Synonyms

Boreal Shield	
NA	
Prairie PR8	

Soil Coast Coase Col	D 1
Soil Great Group - Order	Regosol ₇
	Gleysol ₂ Eutric Brunisol ₁
D	
Parent Material	Fluvial ₉
M. I	Lacustrine ₁
Moisture Regime	Fresh ₃
	Moist ₃
	Moderately Moist
D .	Very Fresh ₂
Drainage	Imperfects
	Well ₂
01	Moderately Well ₂
Slope	(0-0.5)8
	(0.5-2)1
	(2-5)1
Topographic Position	Level
	Lower Slope
	Mid-Slope
	Upper Slope ₁
	Depression ₁
Aspect	No Aspects
	North ₁
	East
6 f T .	West ₁
Surface Texture	Loamy Sand ₃
	Sandy Loam ₃
	Sandı
	Loam ₁
	Silty Loam
	Clay Loam ₁ Silty Clay Loam ₁

Site Features

Effective Texture

Sandy Loam₃ Silty Clay Loam₃ Sandy Clay Loam₁ Silty Clay₁ Silty Loam₁ Clay Loam₁

Forest Productivity

Forest Proc	uucuvu	V						
10,0001.00				Tree S	Species			
	bF	bP	gA	mM	tA	wB	wE	wS
Site Index	$14.2 \pm x$	18.9 ±	14.2 ±	11.2 ±	17.1 ±	13 ± 0.7	12 ±	12.3 ±
(m at 50 years)		1.4	17.3	1	4.8		3.5	3.6
Volume	$66.7 \pm x$	282.2 ±	69.3 ±	29.3 ±	85.9 ±	96.1 ±	162.3 ±	15.6 ±
(m³/ha)		128.4	155.9	10.4	133.3	87.5	344.7	30
MAI	$0.94 \pm x$	4.17 ±	1.13 ±	0.52 ±	1.46 ±	1.89 ±	1.89 ±	0.38 ±
(m³/ha/yr)		1.71	3.14	0.17	2.29	1.89	3.94	1.07
Basal Area	11.2 ± x	35.8 ±	14.5 ±	7.3 ±	12.3 ±	14.3 ±	28.5 ±	4 ± 5.5
(m²/ha)		15.2	42.7	2	17.7	11.8	57.2	
Age (years)	60 ± 19	66 ± 8	59 ± 21	61 ± 6	58 ± 17	64 ± 10	80 ± 22	55 ± 12
Height (m)	$17.5 \pm x$	20.5 ±	15.2 ±	10.5 ±	16.3 ±	15.1 ±	12 ± 4	10.5 ±
		2.6	12.2	0.9	7.9	4.6		5.9
D.B.H. (cm)	$37.7 \pm x$	30.6 ±	19.8 ±	13.8 ±	19.2 ±	25.8 ±	19.7 ±	13.9 ±
		10.2	18.6	1.5	13.9	20.6	16.4	3.6
Density	$100 \pm x$	535 ±	533 ±	431 ±	450 ±	233 ±	314 ±	250 ±
(stems/ha)		226	1654	96	643	127	223	276

Ecological Interpretation

BP17 ecosites are restricted to the eastern portion of the Boreal Plain ecozone. The elm that occurs on these sites may be the last remaining naturally occurring native elms in the provincial forests. Decline of the elm due to Dutch elm disease is evident and despite having an intermediate shade tolerance, regenerating elms occurred on only about one-third of the relevées and with a low cover value. Similarly the green ash encountered on these sites was sporadic and cover values were relatively low. In the absence of disturbance, these sites may slowly migrate toward the condition expressed in BP15, provided the white spruce component was sufficient. However, it is possibly more likely that the canopy will continue to thin and the tall shrub understory will become more prominent. Following disturbance, it is likely that the Manitoba maple and balsam poplar will readily recolonize the site from stump sprouts.



BP18 Black spruce - tamarack treed swamp: Wet humic organic



Dry 2 3 1 5 10 5 12 13 11 67 9 16 14 17 8 15 16 15 19 26 18 22 21 20 24 23 27 Poor Species Richness

Ecosite Description (n = 47)

BP18 ecosites may occur as pure black (or white) spruce stands or pure tamarack stands and any of the intergrades between the three. While ericaceous shrubs are consistently found on these sites, their cover is relatively low. The herbaceous layer is conspicuous on these sites and the diversity of species can be quite high. The feathermosses are abundant on this ecosite, needle litter cover is high and exposed surface water may be present.

Characteristic Species

Layer (Richness)	Common name	% constancy	% cover	Latin name
tree (2.5)	black spruce	96	38	Picea mariana
	tamarack	74	26	Larix laricina
shrub (6.4)	Labrador tea	91	12	Ledum groenlandicum
	lingonberry	77	2	Vaccinium vitis-idaea
	black spruce	72	4	Picea mariana
	willows	64	3	Salix spp.
herb (13.9)	sedges	72	8	Carex spp.
	bishop's cap	70	2	Mitella nuda
	three-leaved false Solomon's-seal	62	2	Maianthemum trifolium
	twinflower	60	3	Linnaea borealis
	dewberry	60	2	Rubus pubescens
	grasses	53	5	Graminoid spp.
	common horsetail	45	4	Equisetum arvense
	dwarf scouring-rush	43	2	Equisetum scirpoides
moss & lichen	Schreber's moss	87	30	Pleurozium schreberi
(23.6)	stair-step moss	87	12	Hylocomium splendens
	other mosses	85	8	
	Sphagnum mosses	62	4	Sphagnum spp.
	knight's plume	47	0.8	Ptilium crista-castrensis
	Dicranum moss	40	0.6	Dicranum spp.
	cup and spike lichens	62	0.5	Cladonia spp.
	other lichens	45	0.8	
ground cover	needle litter	91	19	*
	leaf litter	85	9	•

BP18 Black spruce - tamarack treed swamp: Wet humic organic

Layer (Richness)	Common name	% constancy	% cover	Latin name
ground cover	woody debris	96	8	
	open water	34	7	*
Ecozonal Syn	onyms			
Taiga Shield	Boreal Shield	Boreal Pla	in	Prairie
NA	BS16			NA
Soil Profile		Site Features		
Horizon start depth 33 28		Soil Great Group	o - Order	Humisol Organic, Mesisol Organic, Fibrisol Organic, Gleysol, Humic Gleysol,
20	Horizon	Parent Material		Organics Lacustrine:
0	start depth 4	Moisture Regime	e	Wet ₁ Moderately Wet ₂ Very Moist ₂ Very Wet ₁
Aeg ₁		Drainage		Very Poor ₉ Poor ₁
Bg		Slope		(0-0.5) ₉ (0.5-2) ₁
30 Cg4	Om _e	Topographic Pos	ition	Level- Depression
40				Lower Slope ₁ Toe Slope ₁
50	71	Aspect		No Aspects West
60	Cg4	Surface Texture		Organic Fibric
		Effective Texture		Organic Humics

Organic Mesics Organic Fibrics

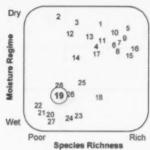
Forest Prod	uctivity					
			Tre			
	bF	bP	bS	tL	wB	ws
Site Index (m at 50 years)	11 ± 33	12.2 ± x	10.2 ± 0.9	15.4 ± 1.4	12 ± 3.3	13.4 ± 5.3
Volume (m³/ha)	5.8 ± 73.6	15 ± x	92.3 ± 21.3	95.6 ± 37.7	12.3 ± 25.4	151.7 ± 204.1
MAI (m³/ha/yr)	$0.13 \pm x$	$0.16 \pm x$	1.03 ± 0.22	1.34 ± 0.5	0.35 ± 2.09	1.81 ± 2.24
Basal Area (m²/ha)	1.8 ± 9.3	4.3 ± x	18.3 ± 3.6	14.5 ± 4.5	3.3 ± 6.1	18.6 ± 22.2
Age (years)	52 ± 29	43 ± 89	95 ± 6	72 ± 6	55 ± 12	95 ± 28
Height (m)	9.2 ± 17.2	$11.6 \pm x$	11.8 ± 0.8	14.6 ± 1.2	10.2 ± 7.1	17 ± 4.2
D.B.H. (cm)	10.2 ± 23.8	$11.4 \pm x$	13.1 ± 1	16 ± 1.8	11.8 ± 6.8	25.5 ± 6.9
Density (stems/ha)	$200 \pm x$	400 ± x	1418 ± 329	697 ± 183	275 ± 457	233 ± 184

Ecological Interpretation

BP18 ecosites can be considered an intermediate step between upland and wetland conditions. The diversity of species associated with these sites, high forest productivity, and frequent presence of open water makes them unique. The water visible in these ecosites is often ephemeral and frequently a flow is apparent. Following disturbance these sites may return to their former condition but they may also become shrub dominated depending on the previous presence of alders and willows. In the absence of disturbance little change in their composition and state is expected, except where balsam fir in the understory may grow into a more prominent presence in the canopy.







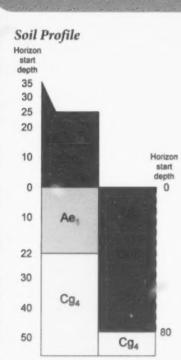
Ecosite Description (n = 44)

BP19 ecosites consistently have a somewhat open canopy of all-aged black spruce. Tamarack also occurs on about half of the sites but with relatively little cover. The understory is largely ericaceous shrubs (mostly Labrador tea) and the ground cover is represented by an even distribution of *Sphagnum* moss interspersed with the occasional stair-step moss.

Characteristic Species

Layer (Richness)	Common name	% constancy	% cover	Latin name
tree (1.9)	black spruce	100	24	Picea mariana
	tamarack	50	2	Larix laricina
shrub (5.6)	Labrador tea	98	25	Ledum groenlandicum
	lingonberry	98	7	Vaccinium vitis-idaea
	black spruce	91	10	Picea mariana
	small bog cranberry	86	1	Vaccinium oxycoccos
	northern bog-laurel	57	0.8	Kalmia polifolia
	willows	41	5	Salix spp.
herb (5.4)	cloudberry	70	4	Rubus chamaemorus
	three-leaved false Solomon's-seal	64	2	Maianthemum trifolium
	sedges	45	2	Carex spp.
moss & lichen	Sphagnum mosses	93	34	Sphagnum spp.
(25.3)	other mosses	80	3	
	Dicranum moss	52	0.5	Dicranum spp.
	stair-step moss	50	7	Hylocomium splendens
	green reindeer lichen	77	4	Cladina mitis
	cup and spike lichens	75	1	Cladonia spp.
	grey reindeer lichen	70	5	Cladina rangiferina
ground cover	needle litter	84	5	
	leaf litter	84	4	
	woody debris	86	4	
	open water	9	3	

BP19 Black spruce treed bog: Moderately wet fibric organic



Ecozonal Synonyms

Taiga Shield	Boreal Shiel
TS9	BS17
Boreal Plain	Prairie NA
	14/4

Site Features

Soil Great Group - Order	Fibrisol Organics Mesisol Organics Humisol Organics Gleysols
Parent Material	Organics Fluvials
Moisture Regime	Wet ₄ Moderately Wet ₄ Very Moist ₁
Drainage	Very Poor ₁₀
Slope	(0-0.5)10
Topographic Position	Level ₉
Aspect	No Aspectio
Surface Texture	Organic Fibrics
Effective Texture	Organic Fibrics Organic Humics Organic Mesic2

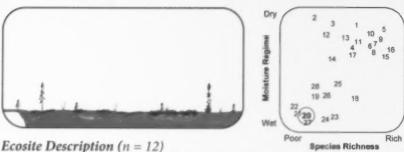
Forest Productivity

		tree Specie	S
	bS	jP	tL
Site Index (m at 50 years)	6 ± 0.6	7.7 ± 14.6	7.4 ± 1.2
Volume (m³/ha)	10.6 ± 6.9	1.6 ± 20	$0.13 \pm x$
MAI (m³/ha/yr)	0.21 ± 0.1	$0.05 \pm x$	$0.7 \pm x$
Basal Area (m²/ha)	5.8 ± 2.3	1.3 ± 7.6	2.4 ± 1
Age (years)	95 ± 28	61 ± 5	83 ± 15
Height (m)	7.4 ± 0.5	7.5 ± 3.4	9 ± 2.1
D.B.H. (cm)	9 ± 0.4	9 ± 3	11.8 ± 2.8
Density (stems/ha)	789 ± 263	200 ± 1271	236 ± 96

Ecological Interpretation

Treed bogs are relatively common in the Boreal Plain ecozone. The black spruce on these sites usually represents all ages as the *Sphagnum* moss on the site encourages vegetative reproduction by layering. *Sphagnum* is also a suitable seed bed for spruce germination provided that the moss isn't Girgensohn's or another fast-growing peat moss which can outcompete and smother black spruce germinants. Despite the wet conditions, black spruce can remain free from rot for long periods. In the absence of disturbance these sites will likely remain as a treed bog. Following disturbance, these sites may more closely resemble BP20 or BP22.

BP20 Labrador tea shrubby bog: Wet fibric organic

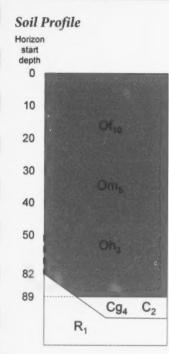


BP20 ecosites are dominated by a variety of ericaceous shrubs, notably leatherleaf and Labrador tea. Occasionally, black spruce and/or tamarack may occur in tree form (i.e. >2 m) but the cover is usually low (i.e., <10%). Aside from the expected absence of trees, shrubby bogs tend to have a greater proportion of Sphagnum moss than would be found on treed bogs (BP19).

Characteristic Species

Layer (Richness)	Common name	% constancy	% cover	Latin name
tree (1.4)	black spruce	58	2	Picea mariana
shrub (5.1)	small bog cranberry	100	3	Vaccinium oxycoccos
	Labrador tea	92	29	Ledum groenlandicum
	leatherleaf	92	16	Chamaedaphne calyculata
	black spruce	75	8	Picea mariana
	lingonberry	58	8	Vaccinium vitis-idaea
	northern bog-laurel	58	2	Kalmia polifolia
	dwarf bog-rosemary	50	3	Andromeda polifolia
herb (3.7)	cloudberry	75	3	Rubus chamaemorus
	three-leaved false Solomon's-seal	50	3	Maianthemum trifolium
	sedges	42	2	Carex spp.
moss & lichen	Sphagnum mosses	100	56	Sphagnum spp.
(17.8)	other mosses	58	2	
	Schreber's moss	50	6	Pleurozium schreberi
	green reindeer lichen	67	5	Cladina mitis
	cup and spike lichens	58	0.6	Cladonia spp.
ground cover	leaf litter	58	8	
	woody debris	58	2	
	open water	25	6	-

BP20 Labrador tea shrubby bog: Wet fibric organic



Ecozonal Synonyms

Taiga Shield	Boreal Shield
TS10	BS18
Boreal Plain	Prairie NA

Site Features

Sile reutures	
Soil Great Group - Order	Fibrisol Organica Mesisol Organica Gleysola
Parent Material	Organic ₉ Fluvial ₁
Moisture Regime	Wet ₆ Moderately Wet ₂ Very Wet ₁ Very Moist ₁
Drainage	Very Poor ₁₀
Slope	(0-0.5)10
Topographic Position	Level ₉ Depression ₁
Aspect	No Aspect ₁₀
Surface Texture	Organic Fibric ₉ Sand ₁
Effective Texture	Organic Fibric ₈ Organic Humic ₂ Organic Mesic ₁

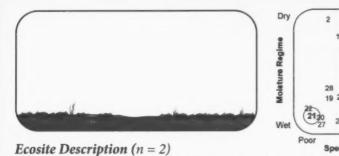
Forest Productivity

	Tree Species	
	bS	
Site Index (m at 50 years)	$8.9 \pm x$	
Volume (m³/ha)	-	
MAI (m³/ha/yr)	*	
Basal Area (m²/ha)	$0.7 \pm x$	
Age (years)	66 ± 6	
Height (m)	7.8 ± 7.8	
D.B.H. (cm)	$9.7 \pm x$	
Density (stems/ha)	$100 \pm x$	

Ecological Interpretation

Shrubby bogs are relatively common in the Boreal Plain ecozone but less so than in other ecozones. Being wetter than treed bogs, they tend to be associated with Fibrisol and Mesisol organic soils orders. Like the other forms of bogs, most of the moisture they receive is the result of precipitation. Shrubby bogs, unlike treed bogs, are more likely to be found on level sites. Since the water table associated with shrubby bogs is usually below the site surface, they are still susceptible to disturbance from fire. Fires with a long enough duration or intensity may kill shrub species and the bog may transition into an open (BP22) or graminoid dominated (BP21) condition.

BP21 Graminoid bog: Wet fibric organic



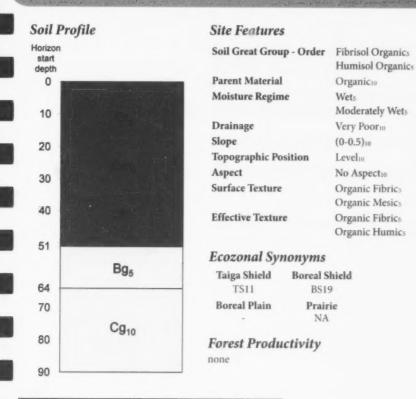
BP21 ecosites are dominated by sedges and other graminoids in association with *Sphagnum* moss. They typically lack any substantial tree or shrub cover and can occur on mineral or organic substrates.

Characteristic Species

Layer (Richness)	Common name	% constancy	% cover	Latin name
tree (1.0)				
shrub (2.5)	small bog cranberry	50	6	Vaccinium oxycoccos
	Labrador tea	50	3	Ledum groenlandicum
	black spruce	50	3	Picea mariana
	northern bog-laurel	50	3	Kalmia polifolia
	dwarf birch	50	2	Betula pumila
	jack pine	50	0.5	Pinus banksiana
	lingonberry	50	0.3	Vaccinium vitis-idaea
herb (5.0)	water sedge	50	50	Carex aquatilis
	bluejoint grass	50	50	Calamagrostis canadensis
	other grasses	50	20	Graminoid spp.
	other sedges	50	6	Carex spp.
	three-leaved false Solomon's-seal	50	1	Maianthemum trifolium
	cloudberry	50	0.3	Rubus chamaemorus
	wild strawberry	50	0.3	Fragaria virginiana
	tall cotton-grass	50	0.5	Eriophorum angustifolium
	sheathed cotton-grass	50	0.5	Eriophorum vaginatum
moss & lichen	Sphagnum mosses	100	56	Sphagnum spp.
(3.0)	other mosses	50	0.3	
ground cover	leaf litter	100	17	
	woody debris	100	2	2
	open water	50	0.3	

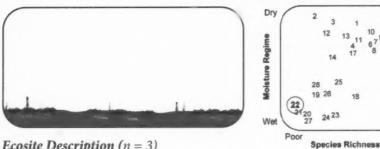
Rich

BP21 Graminoid bog: Wet fibric organic



Ecological Interpretation

Graminoid bogs are infrequently encountered (as indicated by the low sample size). While similar to sedge fens they lack fen species and standing water is not readily seen. Following disturbance by either fire or prolonged flooding, these sites will typically return to their former condition. However, they may revert to an open bog condition until the grasses become re-established. Increased water tables may make these sites more closely resemble a fen condition.



Ecosite Description (n = 3)

BP22 ecosites are dominated by Sphagnum moss with low cover of trees (<10%), shrubs (<20%), and herbs (<20%). They are typically associated with organic soils.

24 23

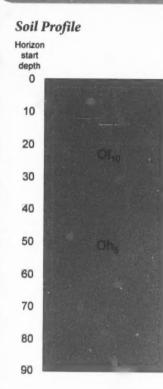
Characteristic Species

Layer (Richness)	Common name	% constancy	% cover	Latin name
tree (1.3)				
shrub (4.3)	northern bog-laurel	100	0.7	Kalmia polifolia
	small bog cranberry	100	0.4	Vaccinium oxycoccos
	Labrador tea	67	13	Ledum groenlandicum
	leatherleaf	67	6	Chamaedaphne calyculata
	black spruce	67	3	Picea mariana
herb (2.7)	sheathed cotton-grass	67	3	Eriophorum vaginatum
moss & lichen	Sphagnum mosses	100	60	Sphagnum spp.
(12.7)	Schreber's moss	67	0.8	Pleurozium schreberi
	Dicranum moss	67	0.4	Dicranum spp.
	other lichens	67	0.9	
ground cover	leaf litter	67	5	4
	woody debris	67	3	4
	open water	67	0.9	

Ecozonal Synonyms

Taiga Shield	Boreal Shield	Boreal Plain	Prairie
TS12	BS20	*	NA

BP22 Open bog: Wet humic organic



Site Features

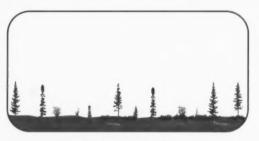
Soil Great Group - Order	Fibrisol Organics Gleysols
Parent Material	Organic ₇ Fluvial ₃
Moisture Regime	Wet ₇ Very Moist ₃
Drainage	Very Poor ₇ Imperfect ₃
Slope	(0-0.5)10
Topographic Position	Level ₁₀
Aspect	No Aspect ₁₀
Surface Texture	Organic Fibric ₇ Sand ₃
Effective Texture	Organic Humic ₇ Sand ₃

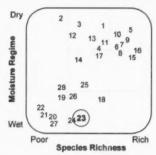
Forest Productivity

none

Ecological Interpretation

Open *Sphagnum* bogs are infrequently encountered (as indicated by the low sample size) in the Boreal Plain ecozone. They tend to occur within treed or shrubby bogs (BP19 & BP20 respectively) which is why they more closely resemble those ecosites rather than graminoid bogs (BP21). Open bogs also tend to be wetter then their surrounding conditions. Over time, these ecosites could be expected to become a shrubby or treed bog.





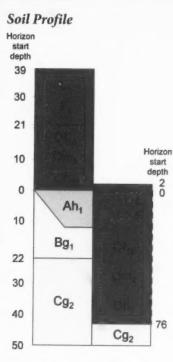
Ecosite Description (n = 13)

Tamarack is the predominant tree species on BP23 ecosites although black spruce may also occur, but in lesser amounts. Many of the shrub and herb species encountered in fens are commonly associated with wet conditions. It is not uncommon for tamarack treed fens to have a water table at or near the surface. Treed fen ecosites may occur on organic soils or they may have a mineral soil substrate.

Characteristic Species

Layer (Richness)	Common name	% constancy	% cover	Latin name
tree (2.2)	tamarack	100	15	Larix laricina
	black spruce	92	10	Picea mariana
shrub (5.7)	willows	100	7	Salix spp.
	Labrador tea	85	5	Ledum groenlandicum
	dwarf birch	77	5	Betula pumila
	small bog cranberry	69	4	Vaccinium oxycoccos
	black spruce	69	4	Picea mariana
	lingonberry	69	3	Vaccinium vitis-idaea
	tamarack	54	2	Larix laricina
herb (9.9)	sedges	77	7	Carex spp.
	three-leaved false Solomon's-seal	77	6	Maianthemum trifolium
	marsh cinquefoil	62	1	Comarum palustre
moss & lichen	Sphagnum mosses	92	22	Sphagnum spp.
(13.6)	other mosses	92	10	
	Schreber's moss	62	5	Pleurozium schreberi
	other lichens	62	1	-
ground cover	needle litter	77	5	
	leaf litter	92	23	
	woody debris	92	5	
	open water	62	11	*

BP23 Tamarack treed fen: Wet fibric organic



Site Features

Site Features	
Soil Great Group - Order	Fibrisol Organic ₃ Mesisol Organic ₃ Gleysol ₂
Parent Material	Organics Lacustrines Fluvials
Moisture Regime	Wet ₄ Very Wet ₃ Very Moist ₂ Moderately Wet ₁
Drainage	Very Poor ₉ Poor ₁
Slope	(0-0.5)10
Topographic Position	Levels Depression ₂
Aspect	No Aspect ₁₀
Surface Texture	Organic Fibrics Sandy Clay Loam ₁ Silty Clay Loam ₁
Effective Texture	Organic Fibric ₆ Organic Mesic ₂ Organic Humic ₂

Ecozonal Synonyms

Taiga Shield	Boreal Shield	
TS13	BS21	
Boreal Plain	Prairie	
-	NA	

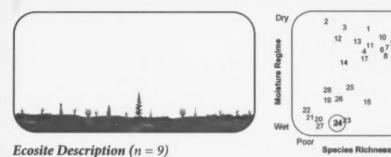
Forest Productivity

Tree Species	
bS	tL
8.5 ± 2.7	8.1 ± 2.2
9 ± 8.3	18.2 ± 18.6
0.16 ± 0.09	0.28 ± 0.29
3.5 ± 2.7	7.5 ± 4.2
84 ± 15	86 ± 16
8 ± 1.5	8.5 ± 2
10.4 ± 1.5	11.7 ± 2.3
350 ± 218	763 ± 589
	8.5 ± 2.7 9 ± 8.3 0.16 ± 0.09 3.5 ± 2.7 84 ± 15 8 ± 1.5 10.4 ± 1.5

Ecological Interpretation

Tamarack treed fens are typically not as common as black spruce treed bogs (BP19). They tend to occur in association with shrubby fens (BP24) and resemble ribbons in the landscape along drainage ways. Following disturbance, these ecosites could be expected to become shrubby fens (BP24). In the absence of disturbance, these ecosites will likely remain in their current condition.

BP24 Leatherleaf shrubby poor fen: Wet fibric organic



Leatherleaf, dwarf birch, and dwarf bog-rosemary are the dominant shrub species on this ecosite. Scattered tamarack or black spruce may also occur. Many of the shrub and herb species encountered in fens are commonly associated with wetter conditions than those found in bogs. It is not uncommon for shrubby fens to have a water table at or near the surface. Shrubby fen ecosites usually occur on organic soils.

Characteristic Species

Layer (Richness)	Common name	% constancy	% cover	Latin name
tree (1.8)	tamarack	78	3	Larix laricina
shrub (6.2)	dwarf birch	100	10	Betula pumila
	leatherleaf	89	37	Chamaedaphne calyculata
	willows	89	7	Salix spp.
	black spruce	78	2	Picea mariana
	dwarf bog-rosemary	67	12	Andromeda polifolia
	Labrador tea	67	3	Ledum groenlandicum
	small bog cranberry	67	1	Vaccinium oxycoccos
	tamarack	56	1	Larix laricina
herb (7.4)	swamp horsetail	78	2	Equisetum fluviatile
	marsh cinquefoil	67	1	Comarum palustre
	sedges	56	2	Carex spp.
	three-leaved false Solomon's-seal	56	2	Maianthemum trifolium
moss & lichen	Sphagnum mosses	100	29	Sphagnum spp.
(11.6)	other mosses	78	9	
	other lichens	100	0.6	
ground cover	needle litter	67	2	*
	leaf litter	89	17	
	woody debris	100	4	
	open water	89	10	*

Rich

BP24 Leatherleaf shrubby poor fen: Wet fibric organic



Cita Engtuena

Site reatures	
Soil Great Group - Order	Fibrisol Organica Mesisol Organica Gleysola
Parent Material	Organic ₉ Fluvial ₁
Moisture Regime	Wet ₆ Moderately Wet ₂ Very Wet ₂
Drainage	Very Poor10
Slope	(0-0.5)10
Topographic Position	Levels
	Depression ₂
Aspect	No Aspectio
Surface Texture	Organic Fibric ₁₀
Effective Texture	Organic Fibrica Organic Mesic ₂

Forest Productivity

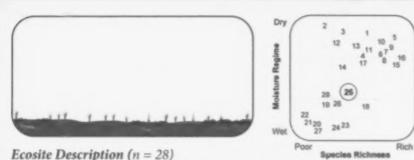
	Tree spec	IC
	tL	
Site Index (m at 50	years) 8.9 ± x	
Volume (m³/ha)		
MAI (m3/ha/yr)		
Basal Area (m²/ha)	1.4 ± x	
Age (years)	54 ± 13	
Height (m)	7.5 ± x	
D.B.H. (cm)	9.4 ± x	
Density (stems/ha)	200 ± x	

Taiga Shield	Boreal Shield
TS14	BS22
Boreal Plain	Prairie
	NA

Ecological Interpretation

Leatherleaf shrubby poor fens are similar to tamarack treed fen (BP23) conditions and frequently occur adjacent to them. However, leatherleaf shrubby poor fens tend to be wetter than treed fens, and as such, will have lesser amounts of lingonberry and Schreber's moss but a higher proportion of swamp horsetail. Following disturbance, these ecosites could be expected to return to a shrubby fen condition or possibly to a BP26 or BP27 condition. As with all fens, the water on these sites is largely of ground water origin and relatively mineral-rich.

BP25 Willow shrubby rich fen: Wet humic organic



BP25 ecosites have characteristically high cover values of willow. The typical willows associated with this site are pussy willow and flat-leaved willow. Other shrubs that may be found on the site include dwarf birch, northern gooseberry, northern red current and alder-leaved buckthorn. Shrubby rich fens also tend to have more open water at the surface than shrubby poor fens (BP24). In the Boreal Plain ecozone, willow shrubby rich fens commonly occur on organic soils.

Characteristic	Species
----------------	---------

Layer (Richness)	Common name	% constancy	% cover	Latin name
tree (1.0)				
shrub (4.6)	willows	93	39	Salix spp.
herb (13.2)	sedges	71	13	Carex spp.
	small bedstraw	54	0.4	Galium trifidum
	marsh cinquefoil	50	2	Comarum palustre
	grasses	46	22	Graminoid spp.
	arrow-leaved coltsfoot	39	2	Petasites sagittatus
	dwarf raspberry	39	2	Rubus acaulis
moss & lichen	other mosses	82	1-4	
(14.4)	other lichens	46	1	
ground cover	leaf litter	93	45	
	woody debris	82	9	
	open water	32	23	

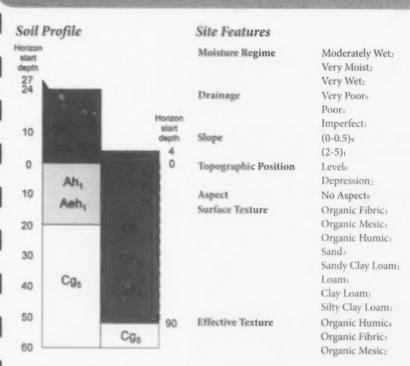
Ecozonal	Sy	nonyms
Taiga Shiel	d	Boreal S

Taiga Shield	Boreal Shield
NA	BS23
Boreal Plain	Prairie NA

Site Features

Soil Great Group - Order	Fibrisol Organic: Mesisol Organic: Humisol Organic: Gleysol:
Parent Material	Organic- Fluvial: Morainal:
Moisture Regime	Weti

BP25 Willow shrubby rich fen:



Forest Productivity

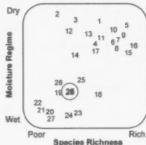
	bs	tL.	wB	wS
Site Index (m at 50 years)	$10.9 \pm x$		8.3 ± 8.6	$9.5 \pm x$
Volume (m¹/ha)			4	-
MAI (m'/ha/yr)			-	$0.4 \pm x$
Basal Area (m2/ha)	0.5 ± x	$0.5 \pm x$	1 ± 3.9	$6.5 \pm x$
Age (years)	101 ± 51	27 ± x	64 ± 111	92 ± 90
Height (m)	5.2 ± x	5.5 ± x	6.3 ± 13.3	13.1 ± x
D.B.H. (cm)	$7.6 \pm x$	7.7 ± x	9.3 ± 1.9	20 ± x
Density (stems/ha)	100 ± x	100 ± x	150 ± 635	200 ± x

Ecological Interpretation

Willow shrubby rich fens differ considerably from leatherleaf shrubby poor fens (BP24). Rich fen ecosites often occur adjacent to streams and lakes. They may also occur as part of a swale or draw. In the absence of disturbance these ecosites are self-sustaining. Following disturbance they will likely return to their former composition or may more closely resemble an open fen (BP27) condition.

Tree Species





Ecosite Description (n = 9)

Graminoid or sedge fens often support various sedge species (e.g., beaked sedge) and sometimes marsh reed grasses. They generally lack tree and shrub cover. Graminoid fens usually have water at or near the surface which accounts for the presence of water smartweed, yellow marsh marigold, and marsh skullcap. While graminoid fen ecosites are usually associated with organic soils, they may also occur with mineral substrates.

Characteristic Species

Layer (Richness)	Common name	% constancy	% cover	Latin name
tree (0.8)				
shrub (3.7)	willows	100	2	Salix spp.
	tamarack	44	3	Larix laricina
	dwarf birch	33	1	Betula pumila
herb (11.2)	sedges	56	20	Carex spp.
	grasses	56	5	Graminoid spp.
	small bedstraw	44	0.5	Galium trifidum
moss & lichen (8.4)	other mosses	89	10	+
ground cover	leaf litter	56	37	*
	open water	44	39	2

Ecozonal Synonyms

Taiga Shield	Boreal Shield	Boreal Plain	Prairie
TS15	BS24		PR9

BP26 Graminoid fen: Wet humic organic

66

Cg4

Soil Profile Horizon start depth 38 36 30 20 Horizon 10 start depth 0 ò 4 Ah₁ 10 20 Cg. 30 40

Site Features

Gleysol ₄ Fibrisol Organic ₂ Mesisol Organic ₂ Humisol Organic ₁
Organica Fluvial ₂ Lacustrine ₂
Very Moist ₄ Very Wet ₃ Moderately Wet ₂
Very Poor ₉ Poor ₁
(0-0.5)10
Level ₉ Depression ₁
No Aspectio
Organic Fibrics Loamy Sandı Siltı Silty Clay Loamı
Organic Humic ₄ Organic Fibric ₃ Organic Mesic ₂

Forest Productivity

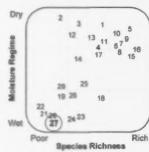
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Tree Species
tL
-
-
$0.5 \pm x$
56 ± x
$4.6 \pm x$
$7.6 \pm x$
100 ± x

Ecological Interpretation

Graminoid (sedge) fens are occasionally found across the Boreal Plain ecozone. They are often in close proximity to lake shorelines but can also form a relatively continuous wet meadow. These sites deviate little from their original condition either in the presence of or absence from disturbance.





Ecosite Description (n = 8)

Open fens are conspicuous by the lack of any dominant form of vegetation with the exception of mosses. It is not uncommon for open fens to exhibit many of the vegetation species found in adjacent ecosites. However, while the diversity of species may be relatively high, the cover values are low. In terms of substrate, open fens can occur with either a mineral or organic substrate.

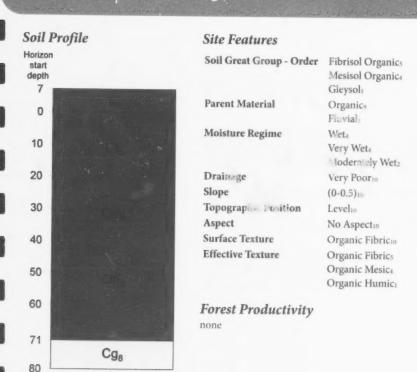
Characteristic Species

Layer (Richness)	Common name	% constancy	% cover	Latin name
tree (0.6)				
shrub (4.0)	willows	87	3	Salix spp.
	dwarf birch	75	2	Betula pumila
	small bog cranberry	50	0.9	Vaccinium oxycocco:
herb (6.1)	sedges	87	2	Carex spp.
	marsh cinquefoil	50	1	Comarum palustre
	three-leaved false	50	0.8	Maianthemuni
	Solomon's-seal			trifolium
moss & lichen	other mosses	75	37	
(6.6)	Sphagnum mosses	50	62	Sphagnum spp.
ground cover	leaf litter	100	48	-
	woody debris	100	2	
	open water	50	4	

Ecozonal Synonyms

Taiga Shield	Boreal Shield	Boreal Plain	Prairie	
TS16	BS25		NA	

BP27 Open fen: Wet fibric organic



Ecological Interpretation

While open fens appear uncommon across the Boreal Plain ecozone (as indicated by low sample size numbers) this is an artifact of their existence as small pockets nested within other fen ecosites. Rarely do open fens exist as large expanses. Following disturbance, these ecosites could be expected to return to open fens, but over time, it is likely that they would become part of the more extensive adjacent fen ecosite types.

BP28 Seaside arrow-grass marsh: Very moist humic organic



28 25 18 22 24 23 Poor Species Richness

Ecosite Description (n = 21)

BP28 ecosites commonly contain a variety of graminoid and small herbaceous species, including reed grass, seaside arrow-grass, water sedge, awned sedge, and foxtail barley. The substrate for BP28 ecosites can be either organic or mineral soil.

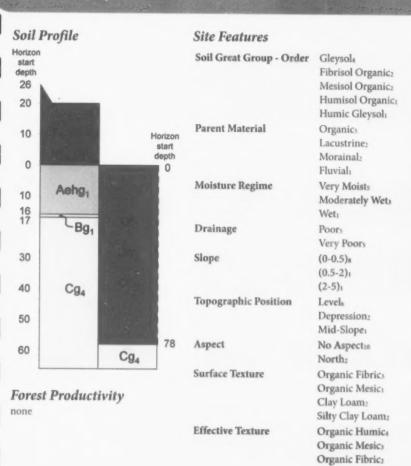
Characteristic Species

Layer (Richness)	Common name	% constancy	% cover	Latin name
tree (0.3) shrub (0.7)				
herb (11.8)	narrow reed grass	52	7	Calamagrostis stricta
	wild mint	52	2	Mentha arvensis
	seaside arrow-grass	43	19	Triglochin maritimum
	small bedstraw	43	3	Galium trifidum
	marsh skullcap	43	2	Scutellaria galericulata
	water sedge	38	10	Carex aquatilis
	foxtail barley	38	7	Hordeum jubatum
	awned sedge	33	24	Carex atherodes
moss & lichen (3.6)	other mosses	57	34	*
ground cover	leaf litter	81	71	*
	open water	19	3	

Ecozonal Synonyms

Taiga Shield	Boreal Shield	Boreal Plain	Prairie
NA	NA		NA

BP28 Seaside arrow-grass marsh: Very moist humic organic



Ecological Interpretation

Seaside arrow-grass marshes are commonly described as meadow marshes owing to their abundance of grasses and sedges. These ecosites are very species diverse and it is not uncommon to encounter water hemlock, common cattail, stinging nettle, or curled dock (an introduced species) on these sites. These ecosites often occur at the margins of small ponds and are affected by changes in water level that lead to alterations in species composition as water-loving species come and go with the fluctuating moisture regime.

6.4 PRAIRIE

Keys & Fact Sheets

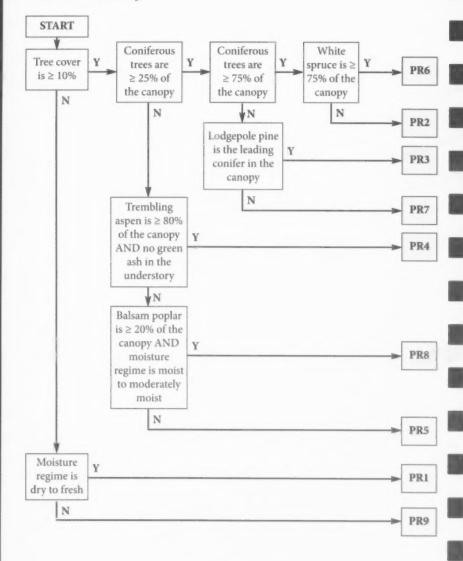
6.4 Prairie Keys & Fact Sheets

Ecosites of the Prairie

- PR1 Plains rough fescue timber oatgrass grassland: Fresh silty clay loam
- PR2 Lodgepole pine / grass: Fresh sandy clay
- PR3 Trembling aspen lodgepole pine / bearberry: Fresh clay loam
- PR4 Trembling aspen / bearberry / strawberry: Fresh clay loam
- PR5 Trembling aspen / beaked hazel / sarsaparilla: Fresh silty clay
- PR6 White spruce / grass / other mosses: Fresh silty clay
- PR7 Trembling aspen white spruce / western snowberry: Fresh silty clay
- PR8 Balsam poplar trembling aspen green ash: Very moist silty clay loam
- PR9 Graminoid fen: Very moist clay

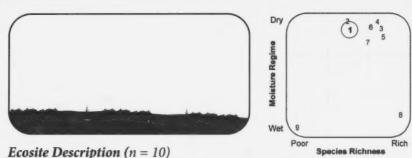
6.4 Prairie Keys & Fact Sheets

Prairie Ecosites Key





Plains rough fescue - timber oatgrass grassland: PR1 Fresh silty clay loam



PR1 ecosites are restricted to the benchlands of the Cypress Hills and are unique in the province.

Their closest floristic affinities are with the montane fescue grasslands of the Alberta foothills. These ecosites are typically dominated by plains rough fescue with a strong showing of timber oatgrass and several wheatgrasses. The montane element of the flora consists of relatively rare species with less than 40% constancy, including silvery lupine, Wyoming kitten-tails, Idaho fescue, sticky purple geranium, western spring beauty, and others. Shrubby cinquefoil and prickly rose are the most common shrubs but low prairie rose and western snowberry are also present in some stands.

-	Characterist	tic Species	
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Layer (Richness)	Common name	% constancy	% cover	Latin name
tree (0.0)				
shrub (1.8)	shrubby cinquefoil	60	5	Dasiphora fruticosa
	prickly rose	40	2	Rosa acicularis
herb (19.6)	plains rough fescue	100	57	Festuca altaica
	timber oat-grass	100	11	Danthonia intermedia
	bluebell	100	5	Campanula rotundifolia
	common yarrow	100	2	Achillea millefolium
	sedges	90	2.8	Carex spp.
	golden-bean	80	2	Thermopsis rhombifolia
	awned wheatgrass	80	0.7	Elymus trachycaulus
	northern bedstraw	70	2	Galium boreale
	northern wheatgrass	70	1	Elymus lanceolatus
	nodding onion	60	0.3	Allium cernuum
	great-flowered gaillardia	60	0.3	Gaillardia aristata
	cut-leaved anemone	50	1	Anemone multifida
	asters	50	0.7	Aster spp.
	Hooker's oat-grass	50	0.4	Avenula hookeri
	low whitlow-wort	40	5	Paronychia sessiliflora

PR1 Plains rough fescue - timber oatgrass grassland: Fresh silty clay loam

Layer (Richness)	Common name	% constancy	% cover	Latin name
herb (19.6)	three-flowered aver alpine hedysarum American vetch smooth fleabane	40 40 40 40	2 1 0.6 0.1	Geum triflorum Heysarum alpinum Vicia americana Erigeron glabellus
moss & lichen (1.8)				and the state of t
ground cover				
Soil Profile		Site Features		
Horizon start depth		Soil Great Group	- Order	Gray Luvisols Eutric Brunisols Black Chernozem2
0	Ae ₈	Parent Material		Glacio-fluvial ₈ Glacio-lacustrine ₂
	Ah ₃	Moisture Regime		Fresh ₁₀
13		Drainage		Well ₁₀
30	Bm ₅ Bt ₅	Slope		(0.5-2) ₄ (5-9) ₂ (9-15) ₂ (0-0.5) ₁
36				(>30)1
50		Topographic Posi	tion	Upper Slopes Mid-Slopes Lower Slopes Levels
60 70	C ₆	Aspect		North ₄ South ₃ West ₂
80		Surface Texture		East ₁ Loam ₃ Silty Loam ₃ Silty Sand ₁
Ecozonal Syn	nonyms			Silt ₁ Silty Clay Loam ₁
Taiga Shield NA Boreal Plain BP1	Boreal Shield NA Prairie	Effective Texture		Clay Loam ₁ Silty Clay Loam ₃ Clay Loam ₂ Silty Loam ₂

Silti

Site Features

Effective Texture Silty Clay:

Sandy Clayi

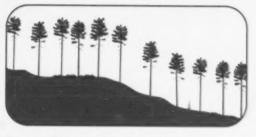
Sandi

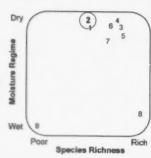
Forest Productivity

none

Ecological Interpretation

These ecosites are well drained, fresh sites and not conducive to the maintenance of tree growth. Historically, they probably burned every 25 to 50 years - fire effectively precluding the succession to woody cover. However, in the absence of fire or mowing, trembling aspen, lodgepole pine, and white spruce will tend to ingress and slowly convert the grassland into a savannah or low-density forest stand (either PR4 or PR6). These sites also become progressively shrubbier in the absence of periodic burning or mowing. Most of the sampled soils were indicative of soil development under tree canopies (e.g., Luvisols and Brunisols), indicating that the grassland vegetation has come to occupy formerly treed sites over the last few centuries. The presence of true grassland soils (i.e., Chernozems), on a minority of these sites, demonstrates that grassland vegetation has occupied some of these sites for a very long time.





Ecosite Description (n = 13)

Lodgepole pine does not naturally occur anywhere else in Saskatchewan but the west and centre blocks of the Cypress Hills (and to a very small extent in the east block of the hills). The trees grow well on these fresh but often cobble-rich Gray Luvisol or less frequently, Eutric Brunisol soils. White spruce and trembling aspen are minor canopy components that increase in importance in the absence of stand-replacing fires. The last extensive forest fire in the hills was in the 1880s, so most stands of pine are over 120 years old, though difficult to age because of rot in the heartwood. Grasses are often an important understory element but some stands, especially on northfacing slopes, may have little but pine needles on the forest floor. Bearberry and Saskatoon are the most common shrubs. This ecosite has close floristic similarities with the montane lodgepole pine forests of the Canadian Rockies. Some of the characteristically montane species are sporadic or rare in occurrence - mountain lady's-slipper and spike trisetum - but others, such as pinedrops and pine-sap, are locally common.

Layer (Richness)	Common name	% constancy	% cover	Latin name
tree (1.5)	lodgepole pine	100	60	Pinus contorta
shrub (5.0)	bearberry	69	9	Arctostaphylos uva-ursi
	prickly rose	69	1	Rosa acicularis
	Saskatoon	54	7	Amelanchier alnifolia
	common juniper	54	2	huniperus communis
	common snowberry	46	2	Symphoricarpos albus
herb (14.5)	northern bedstraw	84	0.8	Galium boreale
	grasses	69	34	Graminoid spp.
	wild strawberry	54	7	Fragaria virginiana
	small-leaved	54	2	Antennaria
	pussytoes			microphylla
	bluebell	54	0.9	Campanula rotundifolia
	western Canada violet	46	3	Viola canadensis
	smooth sweet-cicely	46	0.8	Osmorhiza longistylis
moss & lichen (8.1)	other mosses	54	0.8	
ground cover	needle litter	100	70	
Prairie				295

PR2 | Lodgepole pine/grass: Fresh sandy clay

Layer (Richness)	Common name	% constancy	% cover	Latin name
ground cover	woody debris	92	7	
	leaf litter	54	8	-

Soil Profile

Horizon start depth	
6 -	
0	
9	Ae ₁₀
20	Bt ₇
30	Bm ₃
40	
50	
60	C_2
70	
80	

Ecozonal Synonyms

Taiga Shield	Boreal Shield
NA	NA
Boreal Plain	Prairie
NA	

Site Features

0110 1 0111111100	
Soil Great Group - Order	Gray Luvisolz
D	
Parent Material	Glacio-fluvial9
	Morainal ₁
Moisture Regime	Fresh?
	Moderately Fresh
	Moderately Dry
Drainage	Well ₉
	Rapid
Slope	$(15-30)_3$
	(9-15)3
	(>30)1
	(5-9)1
	(2-5)1
	$(0.5-2)_1$
	$(0-0.5)_1$
Topographic Position	Upper Slopes
	Mid-Slope ₄
	Lower Slope
Aspect	South ₃
*	West ₃
	North ₂
	East ₂
Surface Texture	Silty Loams
	Loam ₃
	Loamy Sand ₂
	Sandy Loam
Effective Texture	Sandy Clay ₄
	Clay Loam ₃
	Silty Clay ₂
	//-

Loam

Sandy Clay Loam

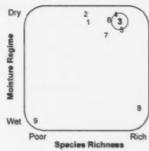
PR2 Lodgepole pine/grass

Forest Productivity	Tree S _I	pecies
	IP	wS
Site Index (m at 50 years)	14.6 ± 2.3	14.1 ± x
Volume (m³/ha)	281.5 ± 80.5	$8.4 \pm x$
MAI (m³/ha/yr)	$3.6 \pm x$	0.11 ± x
Basal Area (m²/ha)	39.5 ± 11.6	$2.1 \pm x$
Age (years)		78 ± 6
Height (m)	15.6 ± 1.7	11 ± x
D.B.H. (cm)	27.1 ± 3.9	16.3 ± x
Density (stems/ha)	708 ± 291	100 ± x

Ecological Interpretation

These ecosites show vigorous regeneration to lodgepole pine after stand-replacing fires or clear-cut logging followed by timely scarification. The sites are very problematic to plant because of the dense packing of large cobbles in the A and B horizons. Mature stands of lodgepole pine on these sites are likely to be replaced by white spruce or trembling aspen in the absence of stand-regenerating crown fire or logging. Stand density and stand height at maturity are largely functions of stocking following fire, and subsequent stand development, and are not principally due to underlying differences in site quality. Some of the most common understory species of these sites are similar in character to the lesser vegetation common in jack pine or jack pine-trembling aspen stands of the Boreal Plains ecozone but those forests cannot be considered synonymous to PR2 because of the absence of lodgepole pine and the lack of montane floristic elements.





Ecosite Description (n = 3)

This mixedwood ecosite is dominated by trembling aspen with a smaller, but ubiquitous coniferous component usually led by lodgepole pine and followed by white spruce. Bearberry, common snowberry, and prickly rose are the leading shrubs. Herb and shrub species richness is relatively high. While wild strawberry, American vetch, and creamy peavine are the most prominent forbs, a variety of grass species often dominate the ground cover. The montane influence in this component of the Cypress Hills vegetation is reflected in the presence of sticky purple geranium and silvery lupine. The heavy leaf litter confines moss and lichen growth to tree trunks and branches and downed wood and stumps. Tree growth is good on the predominantly silty-loam, Gray Luvisol soils of these relatively level sites.

Layer (Richness)	Common name	% constancy	% cover	Latin name
tree (3.0)	trembling aspen	100	40	Populus tremuloides
	lodgepole pine	100	14	Pinus contorta
	white spruce	100	5	Picea glauca
shrub (7.0)	bearberry	100	14	Arctostaphylos uva-ursi
	common snowberry	100	5	Symphoricarpos albus
	prickly rose	100	3	Rosa acicularis
	trembling aspen	100	0.7	Populus tremuloides
	Canada buffaloberry	67	12	Shepherdia canadensis
	white spruce	67	0.9	Picea glauca
herb (20.3)	wild strawberry	100	5	Fragaria virginiana
	American vetch	100	4	Vicia americana
	creamy peavine	100	3	Lathyrus ochroleucus
	northern bedstraw	100	0.8	Galium boreale
	western Canada viole	100	0.7	Viola canadensis
	common yarrow	100	0.3	Achillea millefolium
	grasses	67	39	Graminoid spp.
	fairybells	67	6	Prosartes trachycarpum
	purple oat grass	67	3	Schizachne purpurascens

PR3 Trembling aspen - lodgepole pine/bearberry Fresh clay loam

Layer (Richness)	Common name	% constancy	% cover	Latin name
herb (20.3)	spreading sweet-cicely	67	0.9	Osmorhiza depauperata
	bluebell	67	0.3	Campanula rotundifolia
	star-flowered Solomon's-seal	67	0.3	Maianthemum stellatum
moss & lichen (6.7)	other mosses	67	0.3	*
ground cover	needle litter	100	22	*
	leaf litter	100	7	-
	woody debris	100	2	

Soil Profile

Horizon start depth	
7	
•	
0	
8	Ae ₁₀
20	
30	Bt ₁₀
40	
53	
60	
70	C ₇
80	

Site Features

Soil Great Group - Order	Gray Luvisol
Parent Material	Glacio-fluvial
Moisture Regime	Fresh ₁₀
Drainage	Well ₁₀
Slope	$(0-0.5)_3$
	$(0.5-2)_3$
	(2-5)3
Topographic Position	Upper Slopes
	Mid-Slopes
	Levels
Aspect	No Aspects
	East ₃
	West ₃
Surface Texture	Silty Loam10
Effective Texture	Silty Loams
	Clay Loams
	Clay ₃

Ecozonal Synonyms

Taiga Shield	Boreal Shield
NA	NA
Boreal Plain	Prairie
NIA	

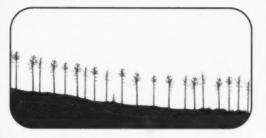
PR3 Trembling aspen - lodgepole pine/bearberry: Fresh clay loam

Forest Productivity		Tree Species	
	1P	tA	wS
Site Index (m at 50 years)	15.3 ± 7.1	13.1 ± 4.3	$11.8 \pm x$
Volume (m³/ha)	141 ± 85.5	66.7 ± 179.4	$13.1 \pm x$
MAI (m³/ha/yr)	2.24 ± 0.96	0.94 ± 2.4	$0.18 \pm x$
Basal Area (m²/ha)	19 ± 4	12.7 ± 38.9	$3.4 \pm x$
Age (years)		64 ± 16	65 ± 51
Height (m)	17.8 ± 10.9	14.9 ± 9.9	$10.8 \pm x$
D.B.H. (cm)	41.8 ± 35.4	19.1 ± 17.2	$20.7 \pm x$
Density (stems/ha)	167 ± 287	533 ± 1864	$100 \pm x$

Ecological Interpretation

The successional relationships of this ecosite are complex, as are the successional relationships of all mixedwoods in Saskatchewan. The vegetation of the ecosite is reflective of the potential climax vegetation of the Hills in the absence of undue water stress or short fire return periods. This ecosite may succeed to all aspen if the weather following a burn is not favourable to conifer establishment. In the absence of fire or logging there will be a tendency for the sites to succeed to greater dominance of white spruce with a monospecific spruce stand being the endpoint of succession when these stand-replacing disturbances are absent for over 150 years. This trend to greater dominance of spruce is accomplished by introgression of the relatively shade tolerant spruce into the established stand and the presence of small-stature white spruce is evidence of the process of stand conversion by successional processes.

PR4 Trembling aspen/bearberry/strawberry: Fresh clay loam





Ecosite Description (n = 7)

These ecosites support trembling aspen forests with a sparse shrubby understory of prickly rose, shrubby cinquefoil and bearberry. The herbaceous cover is mostly grasses, including ticklegrass, timber oat-grass, smooth wild-rye, Idaho fescue, with wild strawberry and a diverse array of other forbs. As with PR3, the quantity of leaf litter prevents any extensive growth of lichens and bryophytes, except on trunks, branches and downed woody debris and stumps. Tree growth is good on sandy clay to clay loam Gray Luvisol soils. Slopes tend to be quite level but some examples of this ecosite do show steeper slopes.

Layer (Richness)	Common name	% constancy	% cover	Latin name
tree (1.7)	trembling aspen	100	79	Populus tremuloides
shrub (4.9)	prickly rose	86	6	Rosa acicularis
	trembling aspen	86	5	Populus tremuloides
	shrubby cinquefoil	86	2	Dasiphora fruticosa
	bearberry	57	20	Arctostaphylos uva-ursi
	common snowberry	43	12	Symphoricarpos albus
	Saskatoon	43	5	Amelanchier alnifolia
herb (23.0)	northern bedstraw	100	1	Galium boreale
	wild strawberry	86	10	Fragaria virginiana
	western Canada violet	86	3	Viola canadensis
	common yarrow	86	0.5	Achillea millefolium
	bluebell	86	0.4	Campanula rotundifolia
	grasses	71	47	Graminoid spp.
	creamy peavine	71	3	Lathyrus ochroleucus
	American vetch	71	1	Vicia americana
	spreading sweet-cicely	57	4	Osmorhiza depauperata
	perennial sow-thistle	57	0.9	Sonchus arvensis
	golden-bean	57	0.9	Thermopsis rhombifolia
	Richardson's alumroot	57	0.9	Heuchera richardsonii
	common dandelion	43	3	Taraxacum officinale

PR4 Trembling aspen/bearberry/strawberry: Fresh clay loam

Layer (Richness)	Common name	% constancy	% cover	Latin name
herb (23.0)	fairybells	43	2	Prosartes trachycarpum
	veiny meadow rue	43	1	Thalictrum venulosum
	smooth sweet-cicely	43	1	Osmorhiza longistylis
	star-flowered Solomon's-seal	43	1	Maianthemum stellatum
	asters	43	0.5	Aster spp.
	graceful cinquefoil	43	0.3	Potentilla gracilis
	cut-leaved anemone	43	0.3	Anemone multifida
	three-flowered avens	43	0.3	Geum triflorum
moss & lichen (3.9)	other lichens	58	1	
ground cover	leaf litter	100	53	
	woody debris	86	4	
	needle litter	43	10	-

Soil Profile

Horizon start depth 7 0 Aeg Ah, 13 20 Bt₇ 30 Bm₄ 44 50 60 C₃ 70 80

Site Features

ola la
resh
Vell ₁

Soil Great Group - Order Gray Luvisola

Site Features

Ecozonal Synonyms

Effective Texture	Sandy Clay ₃ Clay Loam ₃	Taiga Shield TS5	Boreal Shield NA
	Sandy Clay Loam ₁	Boreal Plain	Prairie
	Silty Clay Loam	BP5	
	Silty Clay		

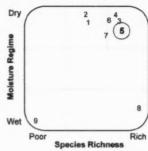
Forest Productivity

10.0001.000.000		Tree Species	
	bP	tA	wS
Site Index (m at 50 years)	$17.2 \pm x$	10.2 ± 3.8	$13.5 \pm x$
Volume (m³/ha)	$237.1 \pm x$	70.5 ± 60.8	$15.5 \pm x$
MAI (m³/ha/yr)	$4.51 \pm x$	1.07 ± 0.82	$0.29 \pm x$
Basal Area (m²/ha)	$41.1 \pm x$	26.4 ± 19	$3.9 \pm x$
Age (years)	50 ± 64	70 ± 13	49 ± 64
Height (m)	$15.7 \pm x$	9.3 ± 2	$10.9 \pm x$
D.B.H. (cm)	$23.7 \pm x$	13.2 ± 3.3	$22.4 \pm x$
Density (stems/ha)	$900 \pm x$	1850 ± 1342	$100 \pm x$

Ecological Interpretation

These ecosites regenerate to trembling aspen after stand-replacement fire or logging. However, in the absence of fire, the aspen stands of these ecosites will age and eventually enter a phase of stand breakdown without proper stand-level regeneration. In some cases, white spruce ingress may convert the sites to mixedwoods with low aspen stocking, or, over a longer time span, into pure white spruce stands.





Ecosite Description (n = 16)

This ecosite supports the chief upland forest type of the Moose Mountain ecodistrict. Trembling aspen is the dominant tree with lesser amounts of green ash and occasionally some growth of white birch. Although the samples used to describe this ecosite all contained green ash or white birch, forests of pure aspen are sometimes encountered across the Moose Mountains. This ecosite has a diverse, multi-layered shrubby understory. The tall shrub layer is dominated by beaked hazel with smaller components of Saskatoon and red-osier dogwood. The lower shrub layers contain prickly rose, common snowberry, twining honeysuckle, raspberry, and low bush cranberry. The herbaceous community is species rich, but has low cover due to the shading effect of the canopy and the typically dense shrubby understory. Common herbs include wild sarsaparilla, smooth blue and Lindley's asters, wild lily-of-the-valley, star-flowered Solomon's seal, bedstraws, and others. The heavy fall of leaf litter prevents bryophyte and lichen growth on the forest floor. Tree growth is good on these fresh, silty clay- or loam-textured Gray Luvisols on level ground, or sometimes steeper slopes.

Layer (Richness)	Common name	% constancy	% cover	Latin name
tree (2.7)	trembling aspen	100	46	Populus tremuloides
	green ash	100	19	Fraxinus pennsylvanica
shrub (9.4)	beaked hazel	100	38	Corylus cornuta
	prickly rose	100	3	Rosa acicularis
	common snowberry	94	3	Symphoricarpos albus
	twining honeysuckle	81	3	Lonicera dioica
	red-osier dogwood	75	3	Cornus sericea
	northern gooseberry	69	0.8	Ribes oxyacanthoides
	green ash	63	7	Fraxinus pennsylvanica
	raspberry	63	4	Rubus idaeus
	Saskatoon	63	2	Amelanchier alnifolia
	low bush-cranberry	63	2	Viburnum edule
	red currant	50	0.9	Ribes triste
	willows	44	1	Salix spp.
	trembling aspen	44	0.7	Populus tremuloides
herb (19.1)	asters	100	2	Aster spp.

PR5 Trembling aspen/beaked hazel/sarsaparilla: Fresh silty clay

Layer (Richness)	Common name	% constancy	% cover	Latin name
herb (19.1)	wild lily-of-the-valley	100	1	Maianthemum canadense
	dewberry	100	1	Rubus pubescens
	star-flowered Solomon's-seal	100	0.5	Maianthemum stellatum
	wild sarsaparilla	94	15	Aralia nudicaulis
	grasses	94	1	Graminoid spp.
	snakeroot	88	2	Sanicula marilandica
	sweet-scented bedstraw	88	0.5	Galium triflorum
	northern bedstraw	88	0.4	Galium boreale
	fairybells	81	0.3	Prosartes trachycarpum
	wild strawberry	75	1	Fragaria virginiana
	common dandelion	75	0.4	Taraxacum officinale
	one-sided wintergreen	63	0.6	Orthilia secunda
	western Canada violet	63	0.6	Viola canadensis
	pink wintergreen	50	1	Pyrola asarifolia
	meadow rues	50	1	Thalictrum spp.
	red and white baneberry	50	0.3	Actaea rubra
	sedges	44	1	Carex spp.
	purple peavine	44	0.9	Lathyrus venosus
moss & lichen	other mosses	100	2	
(11.3)	other lichens	40	0.4	
ground cover	leaf litter	100	87	
	woody debris	100	14	

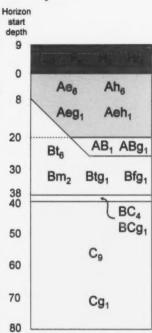
Ecozonal Synonyms

Taiga Shield	Boreal Shield	Boreal Plain	Prairie
NA	NA	BP6	*

PR5

Trembling aspen/beaked hazel/sarsaparilla: Fresh silty clay

Soil Profile



Site Features

Effective Texture

Site Features	
Soil Great Group - Order	Gray Luvisol ⁷ Dark Gray Chernozem ² Luvic Gleysol ¹
Parent Material	Lacustrines Morainals Fluvials
Moisture Regime	Fresh ₉ Very Moist ₁
Drainage	Moderately Wells Well4 Imperfect1
Slope	(0-0.5) ₆ (0.5-2) ₂ (5-9) ₁ (15-30) ₁
Topographic Position	Level ₆ Upper Slope ₂ Mid-Slope ₁ Crest ₁
Aspect	No Aspect ₆ East ₂ North ₁ South ₁
Surface Texture	Silty Clay Loam ₃ Loam ₂

Silty Loam₂ Sandy Loam₁ Clay Loam₁ Clay₁

Silty Clays Clays Clay Loam₂

PR5 Trembling aspen/beaked hazel/sarsaparilla: Fresh silty clay

Forest Productivity

ree		

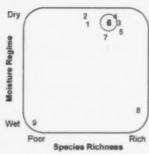
	bP	gA	tA	wB
Site Index (m at 50 years)	$12.2 \pm x$	9.3 ± 1.8	15.8 ± 1.6	12.3 ± 2
Volume (m³/ha)	$161.5 \pm x$	20.8 ± 24.9	97.6 ± 28.4	17.3 ± 34.6
MAI (m³/ha/yr)	$1.8 \pm x$	0.41 ± 0.46	1.83 ± 0.67	0.28 ± 0.39
Basal Area (m²/ha)	$32.5 \pm x$	5.1 ± 4.8	16.1 ± 4	5 ± 9.3
Age (years)	94 ± 222	66 ± 11	53 ± 9	67 ± 29
Height (m)	$14.1 \pm x$	10.1± 1.2	14.4 ± 1.8	9.8 ± 2.3
D.B.H. (cm)	$28.7 \pm x$	13.2 ± 3.8	17.4 ± 4.1	15 ± 9.2
Density (stems/ha)	500 ± x	267 ± 115	785 ± 342	200 ± 130

Ecological Interpretation

Forests on these ecosites historically were regenerated by fire. The advent of European settlement began an era of fire suppression that has dramatically lengthened the fire cycle. Consequently, the trembling aspen over much of the Moose Mountains has become old and the canopy of many stands is beginning to collapse. The importance of green ash, a more shade tolerant tree than trembling aspen or white birch, is an indicator of the shift towards a gap-replacement type forest that is occurring on this ecosite. In the absence of fire or logging, much of this forest will come to be dominated by green ash with, perhaps, an admixture of Manitoba maple. Without fire, white birch will largely disappear from these forests. The occurrence of Chernozem soils on a minority of these sites indicates that some of this ecosite now occupies areas once dominated by grassland vegetation. This is a common phenomenon in the Prairie ecozone, where the absence of fire has allowed trees to invade and displace native grassland vegetation in many places in the south half of Saskatchewan.







Ecosite Description (n = 3)

This Cypress Hills ecosite is forested with a pure white spruce canopy. White spruce also dominates the shrubby understory but trembling aspen seedlings are also present. Prickly rose, raspberry, Canada buffaloberry, western snowberry, and northern gooseberry are common. The presence of shiny-leaved meadowsweet reflects the montane affinities of the flora. Grasses (woodreed, slender wheatgrass, tall brome, and others) dominate the herbaceous layer. Fairybells, spreading sweet-cicely, and many other forbs complement the grasses but have less cover. Feather mosses are the most conspicuous bryophytes but have low cover, probably due to the heavy fall of needle litter from the spruce. The ecosite is relatively rich in bryophytes and lichens but they have low cover, overall. Tree growth is good on these fresh Gray Luvisol, fairly heavy-textured

Layer (Richness)	Common name	% constancy	% cover	Latin name
tree (2.3)	white spruce	100	61	Picea glauca
shrub (6.7)	trembling aspen	100	4	Populus tremuloides
	prickly rose	100	2	Rosa acicularis
	raspberry	100	0.9	Rubus idaeus
	white spruce	67	12	Picea glauca
	Canada buffaloberry	67	5	Shepherdia canadensis
	western snowberry	67	4	Symphoricarpos occidentalis
	northern gooseberry	67	0.8	Ribes oxyacanthoides
herb (18.3)	grasses	100	24	Graminoid spp.
	fairybells	100	11	Prosartes trachycarpum
	spreading sweet-cicely	100	0.8	Osmorhiza depauperata
	American vetch	100	0.8	Vicia americana
	northern bedstraw	100	0.7	Galium boreale
	creamy peavine	100	0.7	Lathyrus ochroleucus
	wild strawberry	67	5	Fragaria virginiana
	western Canada violet	67	2	Viola canadensis

PR6 White spruce/grass/other mosses: Fresh silty clay

Layer (Richness)	Common name	% constancy	% cover	Latin name
herb (18.3)	sweet-scented bedstraw	67	1	Galium triflorum
	perennial sow-thistle	67	1	Sonchus arvensis
	nodding stickseed	67	0.9	Hackelia deflexa
	tall lungwort	67	0.4	Mertensia paniculata
	star-flowered Solomon's-seal	67	0.1	Maianthemum stellatum
moss & lichen	other mosses	100	12	
(13.3)	stair-step moss	67	0.5	Hylocomium splendens
	Schreber's moss	67	0.4	Pleurozium schreberi
ground cover	needle litter	100	50	
	woody debris	100	23	
	leaf litter	100	6	

Soil Profile

Horizon

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10	Ae ₁₀
17	
30	Bt ₁₀
40	10
50	
60	
68	
	C ₇
80	

Site Features

Soil Great Group - Order	Gray Luvisol10
Parent Material	Glacio-fluvial10
Moisture Regime	Fresh ₁₀
Drainage	Well ₁₀
Slope	(0.5-2)3
	(5-9)3
	(9-15)3
Topographic Position	Upper Slope:
	Crest ₃
Aspect	West-
	North ₃
Surface Texture	Silty Loam ₁₀
Effective Texture	Silty Clay:
	Silty Clay Loam ₃

Ecozonal Synonyms

Taiga Shield	Boreal Shield
NA	NA
Boreal Plain	Prairie
NA	

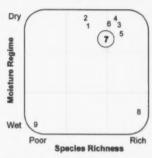
Forest Productivity

	Tree Species	
IP	tA	wS
$15.1 \pm x$	$13.4 \pm x$	14.2 ± 5
84 ± x	267.7 ± 65.3	98.4 ± 89
$1.52 \pm x$	$0.46 \pm x$	3.87 ± 3.36
$9.8 \pm x$	$4.5 \pm x$	37.1 ± 25.3
	84 ± 413	73 ± 23
$19.9 \pm x$	$14.6 \pm x$	17.6 ± 11.9
$35.3 \pm x$	$17 \pm x$	27.6 ± 12.7
$100 \pm x$	$200 \pm x$	600 ± 745
	$15.1 \pm x$ $84 \pm x$ $1.52 \pm x$ $9.8 \pm x$ $19.9 \pm x$ $35.3 \pm x$	IP tA $15.1 \pm x$ $13.4 \pm x$ $84 \pm x$ 267.7 ± 65.3 $1.52 \pm x$ $0.46 \pm x$ $9.8 \pm x$ $4.5 \pm x$ 84 ± 413 $19.9 \pm x$ $14.6 \pm x$ $35.3 \pm x$ $17 \pm x$

Ecological Interpretation

Based on the dominance of white spruce, these sites may be in less fire-prone landscape positions than the more common pine and mixedwood ecosites of the Cypress Hills. However, the presence of trembling aspen seedlings and suckers in the understory indicates that this site could easily succeed to mixedwood or hardwood cover in the event of a stand-replacing disturbance such as fire or logging. The presence of shining-leaved meadowsweet and mountain ash, (at constancy values < 40%) are signs of the montane floristic affinities of this ecosite.





Ecosite Description (n = 8)

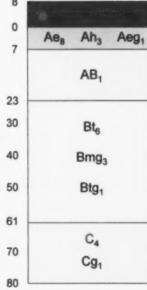
This mixedwood ecosite of the Cypress Hills usually shows an even sharing of the canopy cover between white spruce and trembling aspen. White spruce and trembling aspen also appear in the shrub understory, along with prickly rose, Saskatoon, western snowberry, chokecherry, and raspberry. Douglas hawthorn is present in some stands and is a species only found on the western side of the province. Western purple virgin's-bower is restricted to the Cypress Hills in Saskatchewan and is an example of the montane affinities of the flora of the hills. Wild strawberry, star-flowered Solomon's seal, and northern bedstraw are the leading forbs but a variety of grasses (white-grained mountain rice-grass, pine reed-grass, slender wheatgrass, hairy wild-rye, smooth wild-rye, and others) dominate the herbaceous understory. Tree growth is fair to good on the fresh silty clay or loamy gray Luvisols of mid- to upper slopes. These ecosites are typically found on level to medium slopes in north or west aspects.

Layer (Richness)	Common name	% constancy	% cover	Latin name
tree (2.0)	trembling aspen	100	52	Populus tremuloides
	white spruce	100	40	Picea glauca
shrub (6.5)	prickly rose	100	4	Rosa acicularis
	Saskatoon	100	2	Amelanchier alnifolia
	western snowberry	88	8	Symphoricarpos occidentalis
	white spruce	88	3	Picea glauca
	choke cherry	75	4	Prunus virginiana
	trembling aspen	75	1	Populus tremuloides
	raspberry	50	2	Rubus idaeus
herb (18.1)	wild strawberry	100	2	Fragaria virginiana
	star-flowered Solomon's-seal	100	1	Maianthemum stellatum
	northern bedstraw	100	0.6	Galium boreale
	grasses	88	13	Graminoid spp.
	western Canada violet	88	2	Viola canadensis
	common dandelion	88	1	Taraxacum officinale
	creamy peavine	88	0.9	Lathyrus ochroleucus

Layer (Richness)	Common name	% constancy	% cover	Latin name
herb (18.1)	spreading sweet-cicely	75	2	Osmorhiza depauperata
	tall lungwort	75	2	Mertensia paniculata
	veiny meadow rue	75	1	Thalictrum venulosum
	fairybells	63	3	Prosartes
			i.	trachycarpum
	Canada anemone	50	4	Anemone canadensis
	one-sided wintergreen	50	2	Orthilia secunda
moss & lichen (13.3)	cther mosses	88	10	
ground cover	leaf litter	100	23	
	needle litter	100	20	
	woody debris	100	16	-

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C - 11	Profi	98 -
SOH	Pron	110

Horizon	
start	
depth	
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Site Features

To

As

Surface Texture

Soil Great Group - Order	Gray Luvisola
	Black Chernozemi
	Eutric Brunisol ₁
Parent Material	Glacio-fluvials
	Glacio-lacustrine2
Moisture Regime	Freshs
	Moderately Moist
	Very Moist ₁
Drainage	Wells
	Imperfect ₂
Slope	(0.5-2)2
	(5-9)2
	(0-0.5)1
	(2-5)1

	(9-15)1
	(>30)1
pographic Position	Mid-Slope ₁
	Upper Slope
	Toe Slope
	Depression:
pect	Norths
	West ₂
	No Aspecti
	East ₁

PR7 Trembling aspen - white spruce/western snowberry: Fresh silty clay

Site Features **Ecozonal Synonyms** Surface Texture Taiga Shield **Boreal Shield** Silty Clay Loam₂ NA BS11 Loam **Effective Texture Boreal Plain** Silty Clay₄ Prairie BP9 + BP10 Silty Loam₃ Sandy Loam

Forest Productivity

Tree Species

	tA	wS
Site Index (m at 50 years)	11.4 ± 3.4	14.9 ± 2.6
Volume (m³/ha)	98.4 ± 89	124 ± 122.8
MAI (m³/ha/yr)	1.52 ± 1.12	2.04 ± 1.9
Basal Area (m²/ha)	14.3 ± 10.9	20.9 ± 16.3
Age (years)	92 ± 22	66 ± 9
Height (m)	15.4 ± 5.9	12.5 ± 3.7
D.B.H. (cm)	24.9 ± 7.8	20.3 ± 10.2
Density (stems/ha)	329 ± 286	571 ± 361

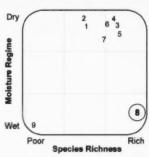
Clay Loam₁ Clay₁

Ecological Interpretation

These ecosites are classic mixedwoods that may show dominance of either aspen or spruce, through time, dependent on: 1) the availability of spruce seed in forest stands adjacent to the new burn or cutover, 2) the average time between successive fires (the fire interval or fire return period) or harvest rotation. The shorter the fire interval or harvest rotation, the more likely trembling aspen is to dominate the stand. If the fire interval becomes short enough, tree growth is prohibited and the ecosite succeeds to a grass-dominated vegetation type. The occasional appearance of this ecosite on Chernozem grassland soils demonstrates the ongoing process of grassland invasion by forest vegetation, in the Cypress Hills. This is one of the more likely scenarios if the climate becomes warmer and dryer in the hills - as fires become more frequent, much of the existing forest is converted to grassland by a much-shortened fire return period.

Balsam poplar - trembling aspen - green ash: Very moist silty clay loam





Ecosite Description (n = 4)

This ecosite describes the moist to wet forests of the Moose Mountains. Balsam poplar reflects the imperfect nature of the drainage on these sites. Trembling aspen and green ash share canopy dominance with balsam poplar in most cases. The two-layered shrubby understory is very species rich with raspberry, Saskatoon, common snowberry, and prickly rose being the most common species but a long list of other shrubs make significant appearances. The herbaceous understory is also relatively species rich with wild sarsaparilla, several grasses, snakeroot, dewberry, wild-lily-of-the-valley, and a long list of other forbs and sedges being frequently encountered. Lichens and bryophytes are few in number and abundance because of the heavy leaf litter fall. Tree growth is good on the moist silty clay loam Gray Luvisols or Humic Gleysols of these level sites in lower slopes positions.

Layer (Richness)	Common name	% constancy	% cover	Latin name
tree (3.8)	balsam poplar	100	26	Populus balsamifera
	trembling aspen	100	25	Populus tremuloides
	green ash	75	23	Fraxinus pennsylvanica
shrub (9.3)	raspberry	100	10	Rubus idaeus
	Saskatoon	100	4	Amelanchier alnifolia
	common snowberry	100	3	Symphoricarpos albus
	prickly rose	100	1	Rosa acicularis
	beaked hazel	75	26	Corylus cornuta
	willows	75	3	Salix spp.
	red-osier dogwood	75	1	Cornus sericea
	balsam poplar	75	0.9	Populus balsamifera
	twining honeysuckle	75	0.3	Lonicera dioica
	choke cherry	50	2	Prunus virginiana
	green ash	50	1	Fraxinus pennsylvanica
	low bush-cranberry	50	1	Viburnum edule
	northern gooseberry	50	0.7	Ribes oxyacanthoides
	white birch	50	0.4	Betula papyrifera
herb (23.3)	wild sarsaparilla	100	22	Aralia nudicaulis
	grasses	100	2	Graminoid spp.

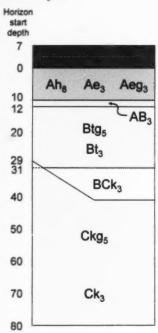
PR8 Balsam poplar - trembling aspen - green ash: Very moist silty clay loam

Layer (Richness)	Common name	% constancy	% cover	Latin name
herb (23.3)	snakeroot	100	1	Sanicula marilandica
	sedges	100	1	Carex spp.
	asters	100	0.9	Aster spp.
	one-sided wintergreen	100	0.6	Orthilia secunda
	common dandelion	100	0.6	Taraxacum officinale
	purple peavine	100	0.4	Lathyrus venosus
	northern bedstraw	100	0.3	Galium boreale
	dewberry	75	1	Rubus pubescens
	wild lily-of-the-valley	75	1	Maianthemum canadense
	western Canada violet	75	0.7	Viola canadensis
	red and white baneberry	75	0.4	Actaea rubra
	star-flowered Solomon's-seal	75	0.4	Maianthemum stellatum
	American vetch	75	0.4	Vicia americana
	spreading sweet-cicely	75	0.3	Osmorhiza depauperata
	sweet-scented bedstraw	75	0.3	Galium triflorum
	veiny meadow rue	75	0.3	Thalictrum venulosum
	wild strawberry	75	0.3	Fragaria virginiana
	fringed loosestrife	50	2	Lysimachia ciliata
	woodland strawberry	50	0.9	Fragaria vesca
	common horsetail	50	0.8	Equisetum arvense
	fairybells	50	0.4	Prosartes trachycarpum
	cow parsnip	50	0.1	Heracleum maximum
moss & lichen	other mosses	100	0.8	
(10.5)	other lichens	50	0.4	*
ground cover	leaf litter	100	88	
	woody debris	100	13	

Ecozonal Synonyms

Taiga Shield	Boreal Shield	Boreal Plain	Prairie
NA	NA	BP17	

Soil Profile



Site Features

Soil Great Group - Order	Luvic Gleysol ₂ Humic Gleysol ₂
Parent Material	Morainals Lacustrine ₂
Moisture Regime	Moists Very Moists
Drainage	Imperfects Poor ₂
Slope	$(0-0.5)_5$ $(0.5-2)_2$ $(2-5)_2$
Topographic Position	Lower Slope ₈ Level ₂
Aspect	No Aspects North ₂ West ₂
Surface Texture	Silty Loam ₅ Sandy Clay Loam ₂ Loam ₂
Effective Texture	Silty Clay ₂ Silty Clay Loam ₂ Sandy Clay Loam ₂ Clay ₂

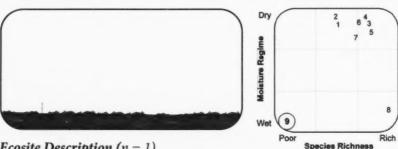
PR8 Balsam poplar - trembling aspen - green ash: Very moist silty clay loam

Forest Productivity		Tree Species	
	bP	gA	tA
Site Index (m at 50 years)	15.3 ± 6.1	12 ± 4.7	15.5 ± 4.3
Volume (m³/ha)	71.1 ± 108.2	7.2 ± 24.9	66.7 ± 155.8
MAI (m³/ha/yr)	1.65 ± 2.92	0.21 ± 2.06	1.27 ± 3.12
Basal Area (m²/ha)	14 ± 22.8	2 ± 6.2	11.3 ± 24.9
Age (years)	55 ± 13	45 ± 17	47 ± 10
Height (m)	13.6 ± 1.1	10.1 ± 3.9	11.9 ± 7.7
D.B.H. (cm)	15.4 ± 6.5	9.1 ± 3	15 ± 14.5
Density (stems/ha)	700 ± 1393	267 ± 717	400 ± 657

Ecological Interpretation

These ecosites have some understory growth of balsam poplar, green ash, and white birch, showing that stand-level regeneration by fire, storm, or logging would likely lead to a similar multispecies hardwood stand on most sites. Stand replacement wildfire was probably less common on these sites than more upland locations but this ecosite still probably burned periodically. The appearance of this ecosite on a Chernozem soil demonstrates that some degree of invasion of wet prairies has occurred in the Moose Mountains, likely since the suppression of wildfire after the advent of European settlement. One very curious phenomenon observed in a few of these sites is the regeneration of both green ash and Manitoba maple by growth of branches, into trunks, after the fall of a mother tree to the soil surface. The branches oriented upwards on the fallen, but living, mother trunk elongate and become new trunks in their own right, still dependent on the living root system of the mother tree.

Graminoid fen: Very moist clay



Ecosite Description (n = 1)

Although only one graminoid fen (slough edge) ecosite was sampled in the Moose Mountains, this ecosite is relatively common in the knoll and kettle moraine landscape. These ecosites have been well described in the literature and it is from those sources (Coupland, 1950) and the personal observations of Dr. Robert Wright that most of the following description derives. Trees do not occur in this ecosite but shrub-sized examples of green ash, balsam poplar, and occasionally trembling aspen, are common. Willows are the most common shrub species. The herbaceous community is dominated by sedges and grasses, led by beaked and water sedge. Bluejoint, tufted hair, and slough grass are common, as are manna grasses and spangletop in the wetter sites with standing water. Small bedstraw, wild mint and Canada thistle, sow thistles, and cow parsnip are common forbs as is a long list of asters and other well-known wet site forbs from the sloughs of southern Saskatchewan. The clay-textured Humic Gleysols are poorly drained and generally wet all year round. The saturated condition of the soil leads to anaerobic conditions in which sulphur bacteria produce the hydrogen sulphide or rotten egg gas which gives these soils their sulphurous smell.

Characteristic Species

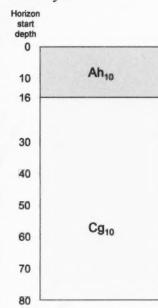
Layer (Richness)	Common name	% constancy	% cover	Latin name
tree (1.0)				
shrub (0.0)	green ash	100	0.1	Fraxinus pennsylvanica
herb (5.0)	sedges	100	50	Carex spp.
	grasses	100	15	Graminoid spp.
	small bedstraw	100	0.3	Galium trifidum
moss & lichen (2.0)	other mosses	100	2	
ground cover	leaf litter	100	38	4
	exposed soil	100	24	

Ecozonal Synonyms

Taiga Shield	Boreal Shield	Boreal Plain	Prairie
NA	NA	BP17	-

PR9 Graminoid fen: Very moist clay

Soil Profile



Site Features

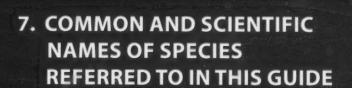
Soil Great Group - Order	Humic Gleysol
Parent Material	Lacustrine ₁₀
Moisture Regime	Very Moist ₁₀
Drainage	Very Poor ₁₀
Slope	(0-0.5)10
Topographic Position	Level ₁₀
Aspect	No Aspect ₁₀
Surface Texture	Clay ₁₀
Effective Texture	Clay10

Forest Productivity

none

Ecological Interpretation

These ecosites are strongly influenced by the significant fluctuations in water level that marsh (slough) edge vegetation experiences in the Prairie Ecozone of Saskatchewan. The high water levels of the spring, (or of the summer and fall in exceptionally wet years), prevent the growth of tree species. In longer periods of drought, trees, and shrubs such as willows, will invade the herbaceous zone adjacent to water, but these trees and shrubs are always killed by flooding when normal water levels return. There is a distinct zonation in vegetation around these marshes, with species of progressively greater flooding tolerance increasing in prevalence as one approaches the long-term high water mark. The potential effect of climate warming and drying may be to convert this marsh vegetation zone into a treed or even upland grass ecosystem. Under this scenario, most of the sloughs of the Moose Mountains could dry up and the marsh vegetation, would disappear, replaced by forest or upland grassland vegetation.



A	
alder-leaved buckthorn	
alpine rush	Juncus alpinoarticulatus Chaix
American vetch	Vicia americana Muhl. ex Willd.
arrow-leaved coltsfoot	Petasites sagittatus (Banks ex Pursh) Gray
aster	
Athabasca thrift Armeria maritir	na (P.Mill.) Willd. ssp. interior (Raup) Porsild
awned sedge	
awned wheatgrass	Elymus trachycaulus (Link) Gould ssp.
	subsecundus (Link) A.&D. Love
В	
4.5	Abies balsamea (L.) Mill.
haleam nonlar	Populus balsamifera L.
healed sedge	
healed hazel	
hoorhorry	Arctostaphylos uva-ursi (L.) Spreng.
hishon's can	Mitella nuda L.
black enruce	
bladdarworte	
blueball	Campanula rotundifolia L.
blusharry	Vaccinium myrtilloides Michx.
blueioint grace	Calamagrostis canadensis (Michx.) Beauv.
bog bilbarry	Vaccinium uliginosum L.
bog birch	
bog violet	Viola nephrophylla Greene.
bog willow	Salix pedicellaris Pursh
hog sedge	
brietly buttercup	
buck been	Menyanthes trifoliata L.
hunchbarry	Cornus canadensis L.
building	
C	
Canada anemone	Anemone canadensis L.
Canada buffaloberry	Shepherdia canadensis (L.) Nutt.
Canada thistle	
	Typha latifolia L.
choke cherry	Prunus virginiana L.
cloudberry	Rubus chamaemorus L.
common horsetail	Equisetum arvense L.
common juniper	Juniperus communis L.
common pink wintergreen	Pyrola asarifolia Michx.
common snowberry	Symphoricarpos albus (L.) Blake

common yarrow	
D	
dandelion	Rubus pubescens Raf. Dicranum Hedw. Crataegus douglasii Lindl. Betula pumila L. Andromeda polifolia L. s arcticus L. ssp. acaulis (Michx.) Focke
E early blue violetelectric eels	
F	
fairybells flat-leaved bladderwort flat-leaved willow floccose tansy flow manna grass foxtail barley fireweed fringed aster fringed loosestrife fragile cushion moss	
G golden-bean	

viridis (Vill.) Lam. & DC. subsp. crispa (Ait.) Tui 	
	H
Polytrichum He	hair-cap mosses
Pinguicula villosa	
Carex lasiocarpa El	
Carex siccata Dev	
Cicute	hemlock
Spiranthes romanzoffiana Cha	hooded ladies'-tresses
	Hooker's oat-grass
	1
Festuca idahoensis Eln	Idaho fescue
Monotropa uniflor	Indian-pipe
	J
Pinus banksiana Lai	
Polytrichum juniperinum He	juniper hair-cap moss
	K
Lobelia kalmi	
Viola renifolia G	kidney-leaved violet
Barrer Landau Lancarda	L Lapland buttoning
Ranunculus lapponicus	Labradas tos
Vaccinium vitis-idaea	
Pinus contorta Dougl ex Loi	
Viburnum edule (Michx.) R	
Rosa arkansana Por	
Paronychia sessiliflora Nu	
	M
	Mackenzie hair-grass
Acer negundo	
Glyceria R.	

marsh marigold
N narrow-leaved meadowsweet
northern bastard toadflax Geocaulon lividum (Richards.) Fern. northern bedstraw Galium boreale L. northern bog laurel Kalmia polifolia Wang. northern brome Bromus pumpellianus Scribn. northern gooseberry Ribes oxyacanthoides L. northern grass-of-Parnassus Parnassia palustris L. northern Labrador tea Ledum palustre L. ssp. decumbens (Aiton) Hultén northern reindeer lichen Cladina stellaris (Opiz) Brodo northern wheatgrass Elymus lanceolatus (Scribn. & Sm.) Gould var. lanceolatus
O one-sided wintergreen
pale coralroot

Common and Scientific Names of Species Referred to in this Guide

pitcher-plant
raspberry
sand felt-leaf willow

Common and Scientific Names of Species Referred to in this Guide

smooth brome	Bromus inermis Levss.
smooth fleabane	
smooth sweet-cicely	
snakeroot	
sow thistles	
spangletop	
Sphagnum moss	This start of the Springer L
spike trisetum	Irisetum spicatum (L.) Richt.
stair-step moss	
starflower	
star-flowered Solomon's-seal	
stemless lady's-slipper	** *
spreading dogbane	
sticky false asphodel	
sticky purple geranium	
stiff club-moss	
striate knotweed	
swamp lousewort	Pedicularis parviflora Smith ex rees
swamp horsetail	Equisetum fluviatile L.
sweet gale	Myrica gale L.
sweet-scented bedstraw	
T	
tall cotton-grass	Eriophorum angustifolium Honck.
tall lungwort	
tamarack	
three-flowered avens	
three-leaved false Solomon's seal	
three-toothed saxifrage	
tickle grass	
timber oat-grass	
trembling aspen	
tufted hair-grass	
tufted moss	
Turnor's willow	
twining honeysuckle	
twinflower	
two-seeded sedge	
Tyrrell's willow	Saux tyrrettu Raup

Common and Scientific Names of Species Referred to in this Guide

V
veiny meadow rue
W
water hemlock
water parsnip
water sedge
wavy dicranum Dicranum undulatum Ehrh. ex Web. & Mohr. non Brid.
western Canada violet
western dock
western purple virgin's-bower
western red lily Lilium philadelphicum L.
western snowberry Symphoricarpos occidentalis Hook.
western spring beauty
white birch
white spruce
wild lily-of-the-valley
wild mint
wild sarsaparilla
willow
wild strawberry Fragaria virginiana Duch.
wire rush
woodland horsetail Equisetum sylvaticum L.
woodland strawberry Fragaria vesca L.
Wyoming kitten-tails
Y
yarrow
yellow marsh-marigold

8. ADJACENT JURISDICTION

Adjacent Jurisdiction Ecosite Synonyms

Identifying ecosite synonyms in adjacent jurisdictions is not a straightforward process. When ecosystem classifications are built, they are based on numerous and specific assumptions, intentions, approaches, and objectives. Because these may be different in adjacent jurisdictions, there may not necessarily be a simple one-to-one ecosite translation. The simple process of running an ecosite description from one system through another's dichotomous key may yield numerous possible outcomes. Ideally, individual plot data should be run through the key to determine the most probable comparable ecosite.

Cross-walking (i.e., determining the equivalent ecosystem conditions between ecological classifications) is being conducted as part of the development of the Canadian National Vegetation Classification (CNVC). The CNVC provides a nationally standardized ecological classification of vegetation conditions for Canada. Wherever provincial or territorial classifications exist, the CNVC crosswalks units at the plant community scale across jurisdictional boundaries to identify synonymies between the national and provincial classification systems. For more information about the Canadian National Vegetation Classification, please refer to: http://cnvc-cnvc.ca.

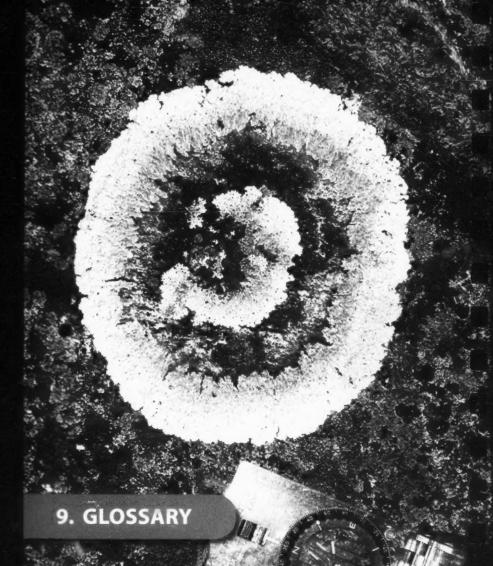
It is the intention of the authors to provide the inter-jurisdictional cross-walks with the Saskatchewan ecosites in a web-accessible version of this guide once the process has been completed. Updates of this guide can be found at: http://www.environment.gov.sk.ca/forests.

Examples of adjacent jurisdiction ecosystem classifications include:

Field Guide to Ecosites of Northern Alberta. (1996). Beckingham, J.D.; Archibald, J.H. Canadian Forest Service, Northwest Region, Northern Forestry Centre. Special Report 5.

Forest Ecosystem Classification for Manitoba. Field Guide. (1995). Zoladeski, C.A.; Wickware, G.M.; Delorme, R.J.; Sims, R.A.; Corns, I.G.W. Canadian Forest Service, Northwest Region, Northern Forestry Centre. Special Report 2.

Cross-walking assists forest practitioners in developing a better understanding about the relationships between ecosystem classifications.



- Abiotic the non-living components of an ecosystem.

 Biotic the living components of an ecosystem.

 Biodiversity contraction of biological diversity; reflecting the variety of genetic, species, or ecosystem conditions and their associated composition, structure, and function within an area.

 Bog a wetland (peatland) condition marked by an accumulation of peat which receives its moisture almost exclusively from precipitation and is dominated by Sphagnum mosses and ericaceous shrubs and may be treed or treeless.

 Brunisol a soil order characterized by having a brownish or reddish brown B horizon
 - **Brunisol** a soil order characterized by having a brownish or reddish brown B horizon of accumulated iron or aluminium > 5 cm thick.
 - **Bryophyte** non-flowering simple plants that lack vascular tissue and includes mosses, liverworts and hornworts.
 - Calcareous composed of or containing calcium carbonate.
 - Canopy the cover provided by plants made up of branches and foliage.
 - **Chernozem** an upland soil order characterized by having a mineral 'A' horizon > 10 cm thick that has been enriched with organic matter.
 - Cryosol a soil order characterized by having permafrost within 1 m of the surface.
 - **Dichotomous key** a series of paired questions or descriptions used to distinguish and identify a unique or specific condition (*e.g.*, plant or ecosystem)
 - **Drumlin** a teardrop shaped and elongated hill of glacial till or other drift (*i.e.*, unsorted sand and rock) left by the retreating glaciers.
 - **Ecodistrict** a subdivision of an ecoregion characterized by similar assemblages of relief, geology, landform, soils, vegetation, and hydrology. In Saskatchewan these are also known as 'landscape areas'.
 - **Ecoelement** a subdivision of an ecosite, having uniform vegetation or soil conditions. This level of classification often separates biotic and abiotic classes and includes 'plant community types', 'v-types', and 's-types'.
 - **Ecological integrity** the quality of an ecosystem in which the composition and structure are maintained to the degree such that natural processes and functions are unimpaired.
 - **Ecological land classification** the process of stratifying and/organizing landscapes on the basis of similar biotic and abiotic qualities or conditions.
 - **Ecoprovince** a subdivision of an ecozone characterized by similar assemblages of landform, hydrology, soil, climate, vegetation, and faunal realms (Wiken, 1986).

Ecoregion - a subdivision of an ecozone, normally mapped at 1:250000 scale and characterized by distinctive large order landforms or assemblages of regional landforms as expressed by vegetation, soils, water, and sometimes human activity.

Ecosite - a recurring site or stand level representation of ecosystems having a relatively homogeneous combination of soil, site, and vegetation characteristics.

Ecosystem-based management - a conservation approach to managing the environment which maintains ecological integrity over the long term by recognizing and integrating scientific knowledge of ecological conditions and relationships with social values and the political framework (Grumbine 1994).

Ecotone - the boundary or transition between two or more distinct ecological communities.

Ecozone - a large area (*i.e.*, usually mapped at 1:1000000 scale) that represents broad features of relatively uniform climate, geology, soils, landforms, vegetation and human activity.

Ericaceous (shrub) - plants of the heath family (Ericaceae) that are tolerant of acidic soil conditions.

Esker - a narrow steep sided ridge of sorted sands and gravel deposited by retreating glaciers in sub-glacial melt water channels.

Feathermoss - a collective term for three common moss species: Schreber's moss (*Pleurozium schreberi*), stair-step moss (*Hylocomium splendens*), and knight's plume moss (*Ptilium crista-castrensis*).

Felsenmeer- literally 'rock sea'; a collection or expanse of exposed angular rocks.

Fen - a wetland (peatland) condition which receives its moisture from (sometimes fluctuating) mineral-rich groundwater and precipitation and is dominated by *Sphagnum* mosses, shrubs, and graminoids; they may be treed or treeless.

Floristics - the distribution and relationship of plant species among sites and regions.

Forest ecosystem classification - a system or process that organizes classifies and describes groupings of forest conditions based on similar abiotic and biotic site attributes.

Glaciolacustrine - pertaining to glacial lakes and in terms of soils referring to the accumulation of fine-grained sediments from lakes formed by melting glaciers.

Gleysol - a soil order characterized by having prominently gleyed conditions within 50 cm of the surface or the presence of organic horizons that do not meet the criteria for an organic soil.

Graminoid - grass or grass-like plants including the grasses (Gramineae), sedges (Cyperaceae) and the rushes (Juncaceae).

- Hummocky uneven terrain composed of mounds or ridges.
 - Luvisol a soil order characterized by having a brownish horizon that has been enriched with clay that has moved from the horizon above.
 - Morainal pertaining to depositional landforms created from glacial till.
 - Organic a soil order characterized by having a layer of fibric organic matter > 60 cm thick or humic organic material > 40 cm thick.
 - pH 'potential of hydrogen'; a measure of acidity or alkalinity; 7 on the pH scale is neutral, < 7 is acidic; > 7 is basic.
 - **Physiognomy** the growth form or structure of plants (e.g., trees, shrubs, herbs).
- Podzol - a soil order characterized by having a reddish brown to black 'B' horizon > 10cm thick with significant accumulated organic and/or iron or aluminium.
- Precambrian shield part of the continental nuclei of very old rock (up to 4 billion years old) on the earths crust. Expressed on the landscape as well rounded, eroded, and often exposed bedrock with a relatively thin veneer of soils and supporting conifer and mixedwood forests.
 - **Project charter** a document describing a projects rationale, objectives, customers, customer needs and requirements, and final and/organization deliverables.
 - **Regosol** a soil order with a weakly defined (i.e., < 5 cm thick) or absent B horizon.
 - Relevé a sample plot used to characterize plant communities and site conditions.
 - Species richness a measure of species diversity calculated as the number of species per sample.
 - Stratification the process of dividing groups into finer units on the basis of some uniform characteristics.
 - Veneer a thin surface material.

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